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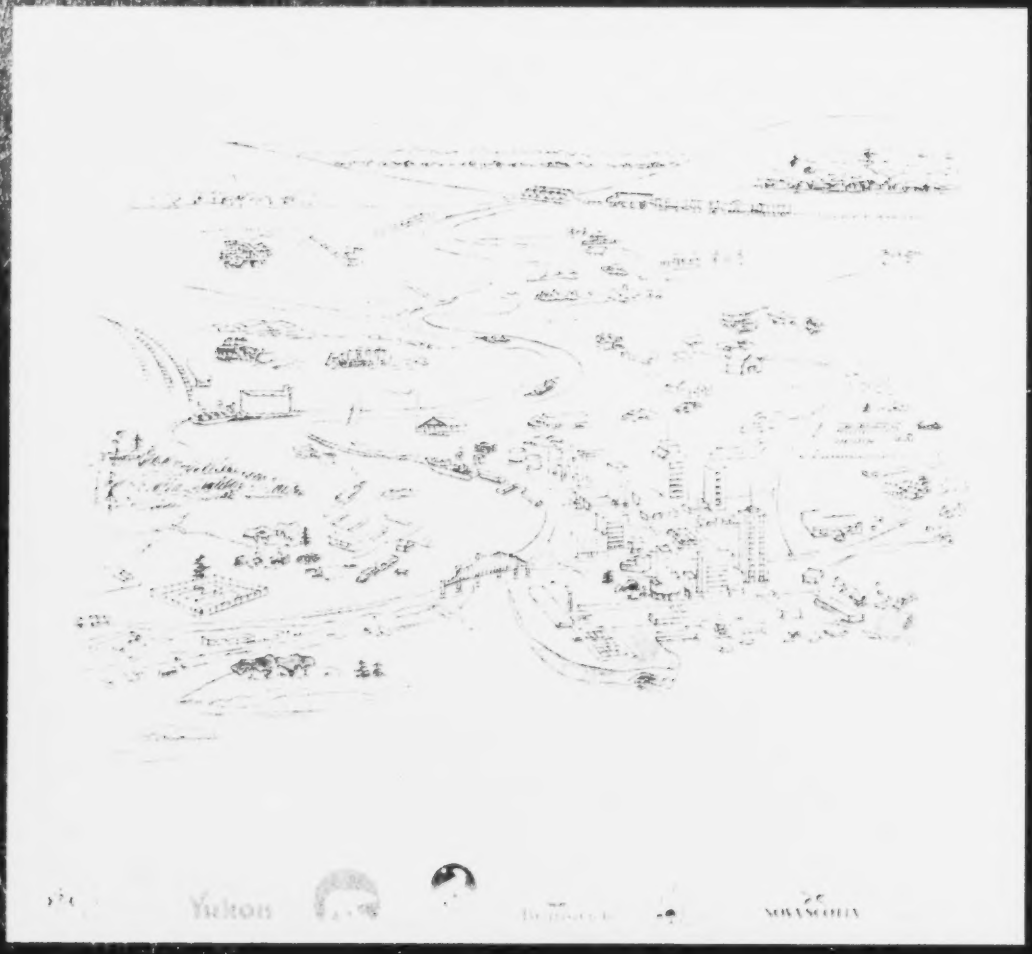
Canada

Implementing Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities



National Report to the 2001 Intergovernmental Review Meeting on Implementation of the Global Programme of Action

November 2001

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ABOUT THIS REPORT

This is Canada's first National Report to the United Nations Environment Programme (UNEP) on the implementation of *Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities* (NPA). It was prepared by the NPA Advisory Committee, comprising the Government of Canada and the provincial/territorial governments of British Columbia, Yukon, Northwest Territories, Nunavut, New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland. The NPA, which was published in June 2000, is a partnership among federal, provincial, and territorial governments aimed at preventing marine pollution from land-based activities and protecting habitat in the coastal and nearshore zones of Canada. It responds to the Global Programme of Action (GPA) under UNEP to protect the marine environment through co-ordinated actions at local, regional, national, and international levels.

The protection of the marine environment is a shared responsibility in Canada and a number of initiatives for its protection are either in place or being developed. Implementing the NPA is based on improving the efficiency and effectiveness of these programs through improved co-operation, strengthening them where required, and proposing new actions for preventive and remedial measures.

This report describes the current framework for managing the marine environment in Canada. It describes the types of programs under way across the country and how these programs are contributing to the goals of the NPA. In keeping with a phased approach to implementing the NPA, this report does not yet address all of the priorities for action outlined in Canada's NPA. As the NPA is further implemented, additional objectives, strategies and actions will be developed. Furthermore, this report does not intend to evaluate the effectiveness of these programs in meeting the goals of the NPA. These issues will be considered in future reports.

This report also summarizes Canada's experiences in developing the NPA and the lessons learned from the process.

The Annex to this report describes more than 90 current and emerging initiatives that are contributing to the goals and objectives of the NPA. *Although it is not possible to describe all of the oceans-related efforts of government, groups, and individuals in Canada, the Annex provides a selected overview of the types of programs aimed at protecting the coastal marine environment and demonstrates the importance of co-operation among all partners to achieving the goals of the NPA.* The Annex also provides website addresses where more information on these and related programs can be obtained.

Note: Every effort was made to ensure that website addresses mentioned in this report were accurate at the time of publication. However, some may have changed since that date. If readers encounter an error message when trying to access a website, they are advised to contact the organization in question to obtain the new website address.

EXECUTIVE SUMMARY

Canada's National Programme of Action (NPA), published in June 2000, is a partnership among federal, provincial, and territorial governments aimed at preventing marine pollution from land-based activities and protecting habitat in the nearshore and coastal zones of Canada. It responds to the Global Programme of Action (GPA) under the United Nations Environment Programme (UNEP) to protect the marine environment through co-ordinated actions at local, regional, national, and international levels.

The NPA focuses on addressing problems within 14 categories under the broad themes of contaminants and physical alteration and destruction of habitat. For each of these categories, the NPA identifies national and regional problems, priorities, goals and objectives, strategies and actions, and next steps. At the national level, high priority for action is assigned to sewage, persistent organic pollutants, shoreline construction/alteration, and wetland and saltmarsh alteration.

The protection of the marine environment is a shared responsibility in Canada and a number of initiatives for its protection are either in place or being developed. Implementing the NPA is based on improving the efficiency and effectiveness of these programs through improved co-operation, strengthening them where required, and proposing new actions for preventive and remedial measures. This report describes the current framework for managing the marine environment in Canada. The Annex to this report provides an overview of over 90 current and emerging initiatives that are helping to deliver on the NPA's goals and objectives.

Actions Supporting NPA Priorities

Since the release of the NPA in June 2000, governments have turned their attention to implementation by working to integrate the NPA's goals and objectives into existing programs and activities. The key mechanism for overseeing the implementation of Canada's NPA is the federal-provincial-territorial NPA Advisory Committee.

The two primary strategies for protecting the marine environment from land-based activities are **pollution prevention** and **integrated management** of activities taking place in or affecting the coastal zone. Canada's current framework of legislation, regulations, and policies provides the basis for many programs aimed at preventing pollution from land-based sources. Pollution prevention programs range from the control of toxic substances, to environmental assessment programs, and resource planning. Governments are also placing a renewed emphasis on integrated management initiatives as a way to achieve environmental results through collaborative planning and decision-making. There are numerous regional and community-level initiatives being led by government, non-governmental organizations, and communities in Canada. Governments are working to incorporate the NPA's goals into these existing initiatives and to improve public participation in these programs.

Habitat protection and restoration programs are also key to implementing the NPA. Canada's current legislative framework provides governments with habitat management tools such as environmental assessment, land-use planning, guidelines, by-laws, and codes of practice. Programs range from monitoring and assessment of watersheds, to protecting and restoring damaged habitat, and preventing pollution from contaminants. Federal, provincial, and territorial governments are also working together

with Canadians to identify and establish marine protected areas for critical, sensitive, or highly productive ecosystems.

Supporting Programs

Supporting programs that improve the understanding of Canada's ecosystems are essential to sound planning and decision-making, determining priorities, identifying those areas or species that need special protection, and evaluating progress. Canada has several monitoring and assessment programs designed to build knowledge bases on contaminant levels and emissions, and water and environmental quality. Inventory and classification systems are aimed at better understanding the composition and status of Canada's ecosystems. Activities range from improving data collection and management to developing mapping tools, and providing greater access to the public. Numerous government-led programs and research institutions across Canada focus on co-ordinating and funding research priorities. Sharing research data among organizations in a timely and effective manner is equally important.

Outreach and Education

Outreach and education are essential to implementing the NPA. Governments are working to improve partnerships with industry, non-governmental organizations, Aboriginal peoples, communities, and the public by expanding joint programs and enhancing the capacity of these groups to address local problems. Outreach activities range from sharing information to providing tools to communities and developing joint stewardship programs. Many governments provide state of the environment reporting and report on their management activities on an ongoing basis. The development and implementation of the NPA Information Clearing-House (*www.ec.gc.ca/marine/npa-pan.htm*) was a major accomplishment in 2001. Governments also support various educational programs across Canada, aimed at enhancing awareness and understanding of ocean ecosystems, promoting stewardship, developing sound science backgrounds, and identifying career opportunities.

Lessons Learned in Developing Canada's NPA

The development process for Canada's NPA included regional discussion papers and workshops on a national discussion paper, followed by public consultations on a draft National Programme of Action. Consultations involved Aboriginal peoples, environmental groups, industry, academia, communities, and the Canadian public. Generally, the GPA methodology provided a logical step-by-step approach that was found to be very comprehensive. A number of key lessons learned are highlighted at the end of this report.

Conclusions and Next Steps

Canada already has the legislative and policy basis and a vast network of marine-related initiatives in place that provide the fundamental framework for implementing the NPA. Over the next few years, governments will continue to incorporate the NPA's goals and objectives into current initiatives; improve and expand partnerships with industry, non-governmental organizations, communities and the Canadian public; and enhance their capacity to address local problems. Over the coming years Canada should also increase its science and monitoring and reporting capacity to ensure a better understanding of its marine and other ecosystems. The NPA Advisory Committee has agreed on a general approach to continue to implement the NPA and will develop a 2001-2006 workplan based on direction and recommendations coming out of the 2001 GPA Intergovernmental Review Meeting.

TABLE OF CONTENTS

ABOUT THIS REPORT iii

EXECUTIVE SUMMARY v

1 INTRODUCTION 1

1.1 Global Programme of Action 1
1.2 Canada's National Programme of Action 1
1.3 Shared Responsibility 4
1.4 The Nature of Canada's Coastal Marine Environment 4

2 IMPLEMENTING CANADA'S NPA 6

2.1 Methodology 6
2.2 Legislative Framework 6
2.3 Co-ordinating Government 7
2.4 Actions Supporting NPA Priorities 8
2.4.1 Preventing Pollution from Land-Based Activities 8
2.4.2 Advancing Integrated Planning and Management 9
2.4.3 Protecting and Restoring Habitat 10
2.4.4 Protecting Special Areas 11
2.5 Supporting Programs 11
2.5.1 Monitoring and Assessing Trends 11
2.5.2 Building Inventories and Classification Systems 12
2.5.3 Improving our Science 12
2.6 Outreach and Education 12
2.6.1 Raising Public Awareness 13
2.6.2 Mobilizing Communities 14

3 LESSONS LEARNED IN DEVELOPING CANADA'S NPA 15

4 NEXT STEPS AND CONCLUSION 17

NPA PRIORITIES 19

CONTACTS 20

LIST OF ACRONYMS 21

ANNEX: OVERVIEW OF SELECTED INITIATIVES ..... A-i

CHAPTER 1 INTRODUCTION

1.1 Global Programme of Action

The *Global Programme for Action for the Protection of the Marine Environment from Land-based Activities* (GPA) was adopted by Canada, together with 108 other maritime nations, in Washington, D.C., in November 1995. The GPA was developed under the auspices of the United Nations Environment Programme (UNEP), in response to Agenda 21 of the United Nations Conference on Environment and Development (UNCED). The GPA calls on countries to develop national and regional programmes of action to protect human health and the environment, and to prevent, reduce and control land-based activities that contribute to the degradation of the marine environment. Copies of the GPA are available from the GPA Information Clearing-House (*www.gpa.unep.org*) or from the NPA contacts listed on page 20 of this report.

The GPA assists countries in taking action to prevent, control and/or eliminate marine degradation from land-based activities either jointly in an international approach to certain regions (e.g., the Arctic, the Gulf of Maine), or individually in a national approach. Development of programmes of action takes place within a country's framework of policies, priorities and resources.

The GPA offers a framework methodology for establishing programmes of action. Canada has used this methodology to develop its NPA. This methodology involves a six-step process:

1. identification and assessment of problems
2. establishment of priorities for action
3. setting goals and management objectives
4. identification, evaluation and selection of strategies and actions
5. identification of criteria for evaluation of effectiveness
6. development of program support elements

The implementation of the GPA is primarily the task of governments, in close partnership with all stakeholders including local communities, public organizations, non-governmental organizations and the private sector.

Canada has prepared this report for the GPA 2001 Intergovernmental Review Meeting, November 26-30, 2001, in Montréal, Quebec. This meeting will bring together senior representatives from over 100 governments, a large number of international organizations, non-governmental organizations, and the private sector. Raising awareness will be an important element of the meeting. It is necessary to increase awareness at all levels, especially the national level, of the importance to address land-based activities as the major source of marine and coastal pollution and degradation. The meeting will also seek to highlight deficiencies in funding as a major impediment for dealing with land-based problems, as well as the need to significantly increase private sector involvement. Another objective of the meeting will be to develop a long-term workplan for the GPA within the framework of a new long-term vision.

1.2 Canada's National Programme of Action

Canada's NPA is a collective effort of the Government of Canada and the provincial territorial governments of British Columbia, Yukon, Northwest Territories, Nunavut, New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland. Consultations on the NPA involved Aboriginal peoples and stakeholders, including environmental groups, industry, academia, communities and the Canadian public. The NPA responds to the GPA under UNEP to protect the marine environment through co-ordinated actions at local, regional, national, and international levels. It also responds to

Canadians who expect clean oceans and the sustainable development of their marine environment. Copies of Canada's NPA are available from the NPA Information Clearing-House (*www.ec.gc.ca/marine/npa-pan.htm*) or from the NPA contacts listed on page 20 of this report.

Canada's goals under the NPA are consistent with the goals of the GPA. They are to:

- protect human health
- reduce the degradation of the marine environment
- remediate damaged areas
- promote the conservation and sustainable use of marine resources
- maintain the productive capacity and biodiversity of the marine environment

The NPA focuses on addressing problems within 14 categories under the broad themes of contaminants and physical alteration and destruction of habitat:

Contaminants

- sewage
- persistent organic pollutants
- radionuclides
- heavy metals
- oils hydrocarbons
- nutrients
- contaminated sediments
- litter

Physical Alteration and Destruction of Habitat

- shoreline construction/alteration
- intertidal and subtidal alteration
- mineral and sediment extraction/alteration
- wetland and saltmarsh alteration
- marine waters and coastal watershed alteration
- biological alteration

Because of the unique social, environmental and economic conditions affecting each of Canada's coastal regions, the NPA contains a national chapter as well as chapters on each of Canada's main coastal regions — the Pacific, Arctic, Southern Quebec/St. Lawrence, and Atlantic (see Figure 1). The national chapter deals with issues that are common to most regions and can be best addressed through national or international actions. The regional chapters address problems that are specific to that region and can best be dealt with through regional, provincial and territorial, or community-based actions.

For each of the 14 categories, the NPA identifies national and regional problems, priorities, goals and objectives, strategies and actions, and next steps:

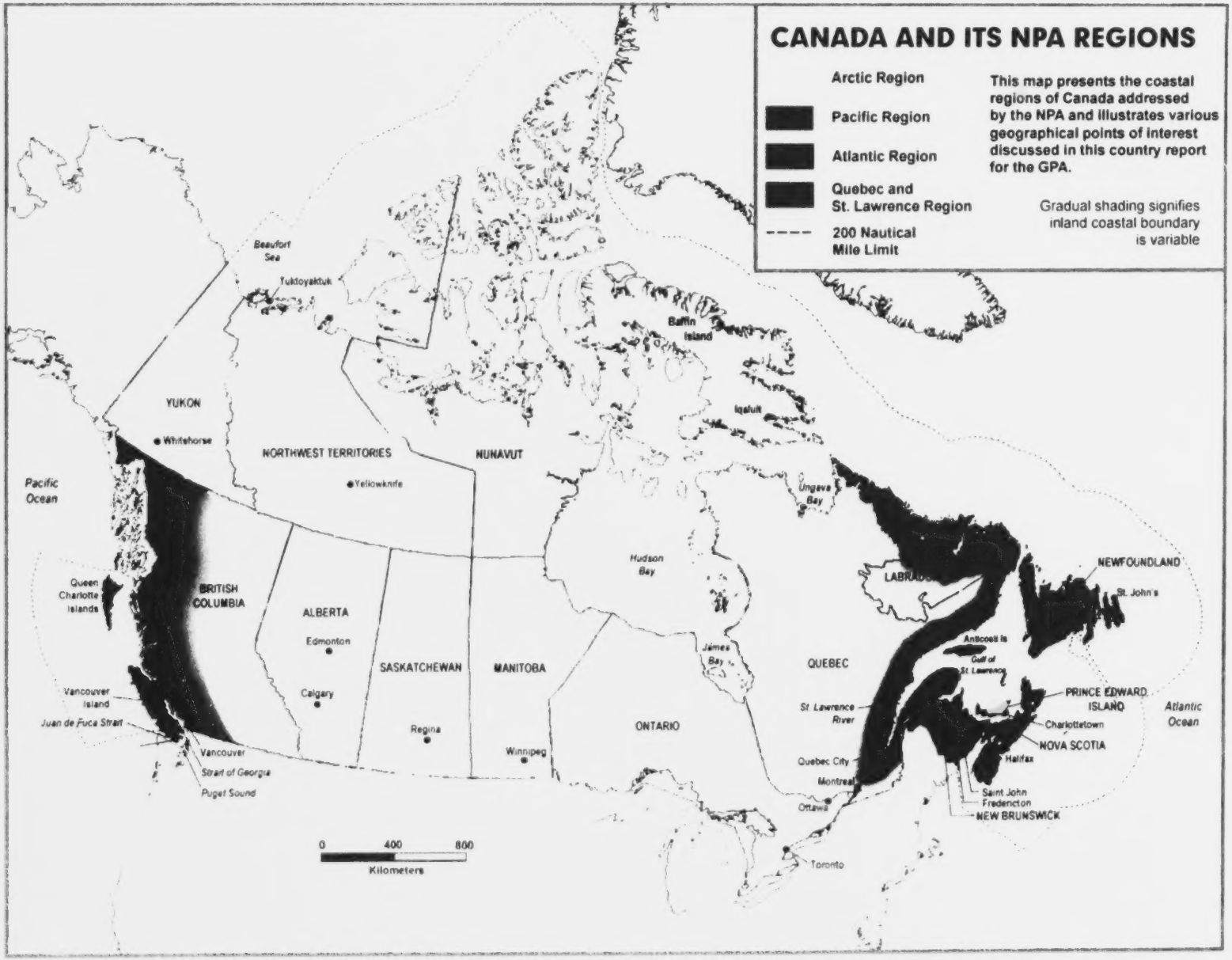
- **Problems** are identified and assessed for land-based activities that can impact on the marine environment and those that occur in nearshore waters (e.g., coastal dredging, harbour developments) that can affect coastal habitat under tidal influence in a fashion similar to land-based activities. Consideration is given to the severity of the problem, sources of degradation, and specific areas of concern.

- **Priorities** are assessed as high, medium, or low priority, based on the severity of risk and adequacy of control measures. At the national level, high priority for action is assigned to sewage, persistent organic pollutants (POPs), shoreline construction/alteration, and wetland and saltmarsh alteration. A table of all priorities can be found on page 19 of this report.

- **Goals and management objectives** are assigned to each source of impact. Sources and receiving environment are both considered.

- **Strategies and actions,** either already in place or proposed, are identified. The two primary strategies for protecting the marine environment form land-based activities are pollution prevention and integrated management of the coastal zone.

Figure 1 Canada and its NPA Regions



Next steps are aimed at taking initial actions on the various priorities, improving co-ordination of activities, and setting the stage for future actions or further work under the NPA. Most of these actions are under way and are described in this document. Others will be the subjects of future reports.

1.3 Shared Responsibility

In Canada, the protection of the marine environment is a shared responsibility. Governments administer a multitude of environmental legislation and regulations, land- and water-use planning measures, and other coastal and marine-related legislation. Responsibility for the management of the marine environment and resources is also shared with the Aboriginal peoples in land claims settlement areas. A description of the key pieces of federal, provincial, and territorial legislation pertaining to the marine environment is found in Section 2.2.

Municipal governments, industry, non-governmental organizations, communities, and individual Canadians are also important partners in protecting the coastal and marine environment. Recognizing the value and contribution of community-based actions and stewardship programs, governments are working towards improving partnerships at the community level, building the capacity of these groups, and developing new, joint programs. Canadians are also taking it upon themselves to reduce their own impacts on the environment and share in the task of cleaning up existing problems, as is witnessed by the growing number of environmental programs, best practices, and codes of conduct being initiated by communities, industry, non-governmental organizations, and the public.

1.4 The Nature of Canada's Coastal Marine Environment

Canada is a maritime nation. Eight out of ten provinces and all three territories border on at least one of three oceans: North Pacific, Arctic and North Atlantic. Canada has the longest coastline in the world, extending more than 243 792 km over 6 1/2 time zones and 40 degrees of latitude, including islands.[1] Geologically and ecologically complex ecosystems along the coasts, such as estuaries and wetlands, connect inland freshwater systems to nearshore marine waters.

Approximately 7 million Canadians[2] (about 23% of the population) live in coastal areas (defined as areas within 60 km of the coast). Populations on the Pacific coast are rapidly expanding; populations on the Atlantic and sparsely populated Arctic coasts are increasing more slowly and in some areas of the Atlantic coast, even declining. Ocean-based industries in Canada generate approximately $20 billion in direct economic benefits.[3] However, the importance of the marine environment extends beyond economic value to a social and cultural significance for the people of Canada. For coastal residents of all cultural backgrounds, oceans are often an important source of food. There is an intimate link between the sustainable use of coastal resources, the health, productivity and biodiversity of the marine environment, and the health and well-being of coastal populations. For example, major changes in marine ecosystems, including the collapse of important groundfish stocks in the early 1990s, have had devastating effects on coastal communities in Atlantic Canada. At the same time, these impacts have raised awareness of the value and fragility of our marine living resources.

[1] "Facts About Canada: Coastline." (*atlas.gc.ca/english/facts/coastline.html*)
[2] "Ocean Facts." (*www.dfo-mpo.gc.ca/oceanscanada*)
[3] "Canada's Ocean Industries: Contributions to the Economy 1988-1998." Roger A. Stacey Consultants Ltd. March 2001

The major threats to the health, productivity and biodiversity of the marine environment result from human activities on land in coastal areas and further inland. It is widely accepted that some 80% of the pollution load in the oceans originates from land-based activities.[4] This includes municipal, industrial and agricultural wastes and runoff, as well as atmospheric deposition. These contaminants directly affect the most productive areas of the marine environment, including estuaries and nearshore coastal waters. The marine environment may also be threatened by physical alterations of the coastal zone, including alteration and destruction of habitats of vital importance.

[4] *The State of the Marine Environment*. Report #39. Joint Group of Experts on the Scientific Aspects of Marine Pollution, UNEP. 1990

CHAPTER 2 IMPLEMENTING CANADA'S NPA

2.1 Methodology

In view of the shared responsibility for managing the marine environment and the cost-effectiveness of building on existing programs, the value of Canada's NPA lies in its co-operative and collaborative approach. The NPA is based on an approach of increasing cost-effectiveness, efficiency and co-operation among all interests and existing policies, programs, resources and legislation.

Implementation of the NPA is taking a phased approach. The intent of the initial phase of the NPA is to raise awareness, generate ideas and present initial actions. Initially, implementation will focus on monitoring actions when they are deemed adequate and strengthening actions when they are deemed inadequate. As the NPA is implemented, additional management objectives, strategies and actions will be developed as required. It will also respond to emerging policies, priorities and initiatives.

Since the release of the NPA in June 2000, governments and partners have turned their attention from development to implementation by working to integrate NPA goals and objectives into existing programs and activities. The following sections describe the framework for managing the marine environment in Canada. They describe the types of programs under way across the country and highlight some of the key programs that are contributing to the goals of the NPA. The Annex to this report builds upon this chapter by further describing some of the current and emerging initiatives within government, many of which are mentioned in this chapter, and some of the key programs that are being led by communities and non-governmental organizations. The Annex also provides website addresses where more information can be obtained on these and related programs.

Together, this report and the accompanying Annex demonstrate that Canada already has the legislative basis and an extensive network of marine-related initiatives in place that provide the fundamental framework for implementing Canada's NPA.

2.2 Legislative Framework

The federal government, provinces and territories are all important players in the conservation and protection of the coastal marine environment under their own environmental, land- and water-use planning and other resource-related legislation. Responsibility for the management of the marine environment and resources in land claims settlement areas is being shared with the Aboriginal peoples involved. This framework of legislation, regulations, and policies provides the basis and management tools for many marine-related programs and tools for implementing many programs aimed at protecting the marine environment.

Generally, the federal government is responsible for navigation, shipping, oceans management, marine protected areas, fisheries management, marine mammals, migratory birds, disposal at sea, marine environmental quality, lands reserved for Aboriginal peoples, and national concerns related to international treaties, criminal law, peace, order and good government.

Within the federal government, Fisheries and Oceans Canada has the lead oceans role and is responsible for fisheries, fish habitat conservation and protection, marine safety, oceans management, and aquaculture.

Environment Canada is also a major player with its responsibility for environmental protection and conservation. At least two dozen other federal departments are involved in the management of Canada's marine environment and have their own policies, regulations and legislation. The key pieces of federal legislation that deal with the marine environment include:

- the *Oceans Act*
- the *Canadian Environmental Protection Act*
- the *Canadian Environmental Assessment Act*
- the *Fisheries Act*

In the territories, management of the coastal area is shared between the territorial governments and the federal government. The territorial governments are responsible for certain lands, the administration and control of which has been transferred to the territorial governments, and the federal government is responsible for the remainder. The federal government is responsible for both inland and marine waters.

Generally, provinces are responsible for property and civil rights, public lands (dry land, land covered by freshwater inland or by saltwater in certain straits, passages, and bays), wildlife, onshore minerals, freshwater, and matters of a local or private nature. Various departments within each province, such as fisheries, environment and resources departments, share roles and administration of oceans-related legislation. Although the legislative framework is specific to each province, provincial legislation generally covers:

- fish, wildlife, and habitat protection
- land- and water-use planning
- environmental protection
- environmental assessment
- waste management

2.3 Co-ordinating Government

Co-operation and co-ordination are at the heart of the NPA. Governments are continuing to work with the various co-ordinating mechanisms to integrate the NPA's goals and objectives into their programs and activities. The key mechanism for overseeing the implementation of Canada's NPA is the NPA Advisory Committee. This federal provincial territorial committee was established in 1996, soon after the GPA Washington Conference, and was responsible for developing Canada's NPA. The committee is co-chaired by Environment Canada and Fisheries and Oceans Canada and includes participation from Indian and Northern Affairs Canada, five coastal provinces (British Columbia, Nova Scotia, New Brunswick, Newfoundland, and Prince Edward Island) and the three territories (Yukon, Northwest Territories, and Nunavut). A Secretariat facilitates committee activities.

Over the last year, the Committee has worked actively to discuss implementation of the NPA. In September 2000, the NPA Secretariat co-ordinated two GPA sessions at the Coastal Zone Canada 2000 Conference. The two sessions focused on the GPA and lessons learned in applying the GPA methodology at the global, national, regional, and local levels; and sharing information on one of the NPA's (and GPA's) high priorities — sewage municipal wastewater. In November 2000, the committee met to discuss how each member was working at the national level and within each of Canada's coastal regions to apply and incorporate the NPA's goals and objectives into current, ongoing initiatives. The committee was also responsible for developing this National Report in preparation for the GPA 2001 Intergovernmental Review Meeting.

A number of other committees and partnerships exist at the national level that bring together all of the provinces and territories and the federal government and provide support, guidance, and co-ordination as required on coastal and marine

issues. Many of these committees also carry out joint programs that are helping to deliver on the NPA's priorities for contaminants and the physical alteration and destruction of habitat. Higher-level committees include the Canadian Council of Fisheries and Aquaculture Ministers and the Canadian Council of Ministers of the Environment.

Because of the uniqueness of Canada's coastal regions, it is often necessary to co-ordinate activities at a regional and local level to address specific problems and priorities. Such activities often involve international co-operation on issues that affect border regions. One of the key activities in the past year has been international collaboration on implementing the *Regional Programme of Action for the Protection of the Arctic Marine Environment*, including work to further the Russian National Programme of Action for the Arctic, development of support elements for a clearing-house, and continued collaboration with Arctic Council Working Groups. Canada is also participating in two GPA pilot projects (the Gulf of Maine and Bight of the Californias) through the Commission for Environmental Co-operation under the North American Free Trade Agreement (NAFTA CEC). Other key co-ordinating mechanisms include the Georgia Basin – Puget Sound Task Force, the Mackenzie River Basin Board, Northern Co-Management Boards, and the Gulf of Maine Council on the Marine Environment.

2.4 Actions Supporting NPA Priorities

Canada's NPA is based on the principles of sustainable development, integrated management, and the precautionary approach. The two primary strategies for protecting the marine environment from land-based activities are pollution prevention and integrated management of activities within coastal and marine waters.

Canada already has a multitude of programs in place that focus on pollution prevention and integrated management. The key challenges in the implementation phase are to continue to promote awareness and understanding of the NPA, and to integrate the goals and objectives of the NPA into existing programs to improve marine pollution prevention and enhance integrated management of coastal activities.

In describing these initiatives, it is nearly impossible to categorize them in terms of the NPA priorities they address since most deal with a multitude of marine-related problems. The very nature of an integrated approach means that initiatives may deal with a complex array of land-, air-, water-, and wildlife-related issues. A single program, therefore, can deal with a number of NPA priorities for contaminants and, particularly, the physical alteration and destruction of habitat. For example, because the reduced economic viability of a fishery may be due to a number of problems such as sewage outfalls, contamination from pollutants, and habitat loss, a comprehensive approach to address all of the problems is normally required.

Actions on the NPA's priorities for contaminants and the physical alteration and destruction of habitat have been grouped under four categories: preventing land-based pollution, advancing integrated planning and management, protecting and restoring habitat, and protecting special areas.

2.4.1 Preventing Pollution from Land-based Activities

The NPA's general management objective for most of the contaminants is to reduce their presence in the marine environment, primarily through pollution prevention. Pollution prevention reduces the risk to human health and the environment by using processes, practices, materials, products or energy sources that avoid or minimize the creation of pollutants and waste. It focuses on eliminating the cause of pollution rather than treating the symptoms. Where contaminants are released to or occur in

the marine environment, the management objective is to apply life-cycle management or remediation to address the problems.

Many laws, regulations, and policies are already in place to meet the NPA's goals and objectives for contaminants. Federal, provincial, and territorial governments are involved in the day-to-day management of pollutants and the protection of fish, wildlife and their habitat from contaminants such as toxics, atmospheric emissions, pesticides, and solid and hazardous waste, through environmental protection and fisheries legislation, environmental assessment programs, and resource planning. Management tools range from regulations and permitting systems to standards, guidelines, and best management practices. Supporting activities include enforcement, compliance promotion, policy development, monitoring, and applied research.

The NPA identifies sewage as a high priority in all coastal regions of Canada. Sewage is released to the marine environment from point sources (e.g., municipal discharges) and non-point sources (e.g., individual septic systems, stormwater and agricultural runoff). As a result, closures of shellfish harvesting and swimming areas are frequent. Canada has taken several steps over the years aimed at improving sewage treatment:

- Infrastructure Canada, launched in 2000, is a six-year national program designed to improve urban and rural infrastructure in all regions of Canada through investments in water and wastewater systems, water management, solid waste management, and recycling.

- The Green Municipal Funds program stimulates investment in environmental technology and innovation in municipal infrastructure and environmental practices. In May 2001, 57 feasibility studies and 4 projects were announced, bringing the total number of projects under this fund to 73.

- All levels of government and several interest groups are working in partnership to develop a comprehensive management approach to address municipal wastewater issues in Canada, as one part of a broader national strategy on water.

The NPA also identifies POPs as a high priority in most coastal regions of Canada. Generally, national point source control measures in Canada (e.g., for PCBs and dioxins and furans) are in place and are considered effective. Canada is also participating in several programs to promote reduction of international sources of POPs and heavy metals (e.g., United Nations Economic Commission for Europe's Protocols on POPs and Heavy Metals; New England Governors and Eastern Canadian Premiers Action Plan on Mercury).

2.4.2 Advancing Integrated Planning and Management

The purpose of integrated planning and management is to ensure diversified, balanced economic development of coastal and marine waters by protecting their health, preserving their biodiversity and maintaining their productivity. Too often, resource use and development activities have proceeded independently, without full consideration of long-term, direct and indirect social, economic, and environmental impacts. The challenge of effective oceans governance is to establish decision-making structures that can conserve and protect marine ecosystems while providing opportunities for wealth creation for coastal communities.

The integrated management approach involves planning and managing human activities comprehensively so that they do not conflict with one another, while taking into full consideration all of the factors necessary for the conservation and sustainable use of marine resources. The process involves identifying ecosystem-based objectives, integrating knowledge from various parties, and planning

on the basis of natural and economic systems rather than political boundaries. The precautionary approach, shared responsibility, flexibility, and ecosystem-based and adaptive management are core principles.

Integrated planning and management is helping Canadians achieve environmental results through partnerships, pooling resources, focusing science, co-ordinating efforts, sharing information and experiences, and generating broad support for collaborative action. Accordingly, many governments in Canada have integrated management initiatives in place and are directly or indirectly incorporating the NPA's goals and priorities into these programs. Examples include Canada's Ecosystem Initiatives, Sustainable Development Strategies and Regional Growth Strategies.

In support of Canada's evolving Oceans Strategy (a comprehensive strategy under the *Oceans Act*), increased effort is now under way to develop integrated management plans for all activities in or affecting Canada's estuarine, coastal and marine waters, including those contributing to marine pollution and habitat degradation (see Tables 1 and 2 in the Annex). These plans are being developed in partnership with the federal government, provinces and territories, Aboriginal peoples, industry, non-governmental organizations and communities.

Canada's approach to integrated management recognizes that management objectives and planning practices must reflect the fact that ecosystems nest within other ecosystems and that governance structures and practices for resource and activities management cannot be divorced from their ecosystem context. Similarly, as most problems and opportunities affecting marine ecosystems start on land, effective planning and management of these ecosystems must integrate land-use activities that impact on water quality, life cycles of marine species and the vulnerability of coastal communities to marine hazards. Thus the evolving framework for the integrated planning and management of Canada's marine ecosystems extends from scales of Large Ocean Management Areas to Coastal Management Areas, with a range of connected and nested structures providing options for regional scales of response within this spectrum. While the ultimate goal is to establish plans for all of Canada's estuarine, coastal and marine waters, pressing regional issues have initially concentrated collaborative efforts in those areas of Canada requiring priority attention. Examples of other coastal initiatives aimed at improving and promoting integrated management include the Fraser River Estuary Management Plan, Burrard Inlet Environmental Action Program, Fraser Basin Council, Priority Intervention Zones in Quebec (ZIP Committees), the Southern Gulf of St. Lawrence Coalition on Sustainability, and the Bay of Fundy Ecosystem Partnership.

2.4.3 *Protecting and Restoring Habitat*

The NPA's primary management objectives regarding the physical alteration and destruction of habitat are to mitigate or avoid harmful alteration and destruction of habitats, and to restore those habitats already degraded. The NPA also identifies some specific management objectives that apply to unique problems.

Many laws, regulations, policies, guidelines, and codes of practice are already in place at the provincial, territorial, and federal levels to meet the NPA's goals and objectives for habitat protection, such as shoreline construction/alteration and wetland/saltmarsh alteration. Ongoing activities include environmental assessment programs for new development projects; land-use planning; regulations and permitting systems governing fisheries, habitat and aquaculture; by-laws and guidelines for shoreline construction; codes of practice and regulations for dredging and disposal practices; best practices for farming operations; and remediation of contaminated sites.

Many habitat protection and restoration programs are managed at a community or regional level to address local priorities and conditions. Activities range from monitoring and assessment of watersheds, to restoring or remediating damaged habitat, and preventing pollution from contaminants. Examples of specific programs aimed at protecting and restoring habitat throughout Canada include the Habitat Restoration and Salmon Enhancement Program, National Fish Habitat Management Program, Shellfish Sanitation Program, Watershed Restoration Program and Protection of Sensitive Streams in British Columbia, Conservation of Arctic Flora and Fauna, and Northern Contaminated Sites Management Program.

2.4.4 Protecting Special Areas

To address some of the NPA priorities for the physical alteration and destruction of habitat (e.g., mineral and sediment extraction or alteration; alteration of marine waters and coastal watersheds), it is necessary to identify critical habitats to ensure that certain activities occur in areas of lesser environmental sensitivity or significance. The establishment of marine protected areas also responds indirectly to the threats of land-based sources of pollution by identifying conservation objectives and threats to achieving those objectives, and determining the means to maintain ecosystem health in that area.

In Canada, the protection of special areas is a shared responsibility. There are three federal agencies with a mandate for establishing marine protected areas. Some provinces and territories also have their own systems of protected areas which include marine protected areas. Wildlife and conservation organizations and private groups as well as landowners are also helping to protect and conserve sensitive ecosystems.

Parks Canada focuses on protecting representative examples of Canada's natural and cultural heritage through National Marine Conservation Areas. Environment Canada works to protect Canada's major marine and nearshore areas for wildlife, research, conservation, and public education hrough Migratory Bird Sanctuaries, National Wildlife Areas, and Marine Wildlife Areas, covering over 118 000 km^2. Fisheries and Oceans Canada may establish Marine Protected Areas under the *Oceans Act* for the conservation and protection of fishery resources and their habitats; endangered marine species, animals and plants; unique habitats; and areas of high biodiversity.

Ideally, marine protected areas may be identified through larger planning processes such as integrated management initiatives, thereby integrating them into the management of all ocean activities or measures within a particular coastal region of Canada. Current and potential resource uses of the area, and the social and economic context, are fully considered in assessing the feasibility of any proposed marine protected area. This ensures that marine protected areas are part of a comprehensive initiative to protect the health and function of the entire marine ecosystem while at the same time allowing for sustainable development. Since 1998, Fisheries and Oceans Canada has announced 12 potential sites for Marine Protected Areas on both the Pacific and Atlantic coasts, with additional areas, including the Arctic, under consideration.

2.5 Supporting Programs

Supporting programs are a key element in implementing Canada's NPA. Understanding our ecosystems is critical to sound decision-making and the sustainable development of marine ecosystems. It is also essential to planning, priority-setting, and determining the effectiveness of management tools such as integrated management, pollution prevention, land-use planning, and marine protected areas.

2.5.1 Monitoring and Assessing Trends

Canada has several national programs designed to build knowledge bases on contaminant levels and emissions, and to assess water and environmental quality. The Marine Environmental Quality Program provides scientific assessment of marine ecosystems and develops ecosystem objectives needed to sustain marine resources and their habitat. Other programs such as the Ecological Monitoring and Assessment Network, the National Pollutant Release Inventory, and Federal-Provincial-Territorial Water Quality Monitoring programs provide various monitoring data that support pollution prevention and control activities.

Monitoring programs are also conducted at the regional and provincial territorial levels and can include international collaboration. Canada's Northern Contaminants Program and the Arctic Monitoring and Assessment Program (conducted in co-operation with the Arctic states) are designed to improve knowledge of the state of the Arctic environment and the health of Arctic peoples, and to develop and promote controls on contaminants. The Gulf of Maine Environmental Monitoring Plan collects and reports on contaminant concentrations and trends in Canadian and U.S. waters throughout the Gulf of Maine ecosystem.

Many of the programs described in other sections of this report (e.g., integrated management initiatives, community-based programs) also conduct monitoring and assessment programs and initiatives as part of their own actions.

2.5.2 Building Inventories and Classification Systems

Understanding the composition and status of Canada's ecosystems is a necessary building block for protecting the coastal marine environment. While some information is collected on fish, animal and plant species and their habitats, and activities such as infrastructure, industry, tourism, cultural, and recreational uses, more integrated and comprehensive information collection and analysis and better mapping tools are required to understand the full range of impacts and to provide greater access to information for the public.

The National Contaminants Information System is a database of information collected since the 1970s on toxic chemicals in fish, other aquatic life, and habitats. Coastal Resource Inventories and various community-level monitoring projects are under way throughout Canada. The tools generated by these programs, such as resource maps, contamination profiles, and habitat classifications, are used by communities and government in identifying critical habitats, assessing development projects, and designing management controls.

2.5.3 Improving our Science

Scientific research is an essential component of successful oceans management, protection, and conservation. Scientific information is necessary to making sound and consistent management and policy decisions on the conservation and protection of aquatic ecosystems and sustainable use of coastal resources. The federal, provincial, and territorial governments operate numerous research institutions across Canada that focus on environmental or marine issues. Universities and private organizations also conduct marine-related research.

In addition, governments manage various research programs aimed at co-ordinating and funding research priorities. The Environmental Science Strategic Research Fund and the Toxic Substances Research Initiative are intended to advance knowledge on the environment and human health, ranging from the adverse effects of toxic substances on aquatic ecosystems, to the effects on marine habitat from physical disruption, sewage or oil spills. The Wildlife and Migratory Birds Research Program conducts research on all aspects of wildlife

health, from biochemical to population-level effects as well as impacts on loss of wildlife (e.g., sustainable harvest).

Sharing research data among organizations in a timely and effective manner is equally important. The Regional Association for Research on the Gulf of Maine is one example of an international program aimed at improving co-ordination of research activities and providing a communication vehicle among scientists and the public.

2.6 Outreach and Education

Agenda 21 (Chapter 36) puts emphasis on the importance of education in promoting sustainable development. Education can give people environmental and ethical awareness, values and attitudes, skills and behaviour needed for sustainable development. Each country should make environmental and developmental education available to people of all ages.

Informing and educating industry, non-governmental organizations, Aboriginal peoples, municipal governments, communities, and the public and providing them with tools to achieve a healthier environment are key to achieving the goals of the NPA. Given Canada's wealth, international commitment and large ocean space, it makes sense for Canada to take on this education role. In developing and implementing the NPA, governments are promoting and facilitating the participation of citizens in all efforts to protect the marine environment from land-based activities, especially pollution prevention and integrated management initiatives. As the NPA is further implemented, governments will expand partnerships among these groups to enhance their capacity to address local problems. The Government of Canada is in the process of updating and modernizing its websites to ensure better access to information on current government programs.

2.6.1 Raising Public Awareness

There is a movement in many countries to involve citizens to a greater degree in government decision-making that ultimately affects them. One of Canada's greatest challenges is that the knowledge of marine ecosystems lags far behind that of terrestrial ecosystems. The need exists to educate Canadians about the oceans in order to allow them to make informed decisions.

Public awareness of ocean and coastal management issues has the potential to:

- increase public participation
- provide knowledge for creating solutions
- encourage shared stewardship
- advance behavioural change

Educating Canadian youth is key to ensuring their present and future involvement in the responsible management of the marine environment. In Canada, all levels of government, in partnership with educational institutions, Aboriginal peoples, and non-government organizations, are committed to environmental youth programs. These educational programs are aimed at enhancing awareness and understanding of ocean ecosystems, promoting stewardship, developing sound science backgrounds, and identifying career opportunities. Activities range from credit-based courses, to interactive workshops and websites, and school stewardship projects.

Another key element to public education and awareness is the improvement of public access to information through the use of Internet technology. A key component to improve service delivery to Canadians is the Government On Line initiative, which is a plan to deliver programs, services and information over the Internet. All federal, provincial, and territorial governments maintain extensive websites that provide information on government programs. Governments also provide state of the

environment reporting and report on their *management activities on an ongoing basis.* The development and implementation of the NPA information Clearing-House was a major accomplishment in 2001. The Clearing-House contains a wide range of online resources and expertise relevant to the NPA and links to community groups, scientists, and government. It also serves as a focal point for the NPA Secretariat, providing news and distributing documents to the public. For those new to the NPA, or to marine environmental issues in general, the Clearing-House allows people to explore issues through Frequently Asked Questions, an extensive glossary of scientific and technical terms and detailed references. The Clearing-House will continue to be updated to provide both more recent information and some exciting new features.

The Oceans Program Activity Tracking (OPAT) System developed by the Fisheries and Oceans Canada is another example of a reporting and tracking tool. This interactive Internet system provides geographic information and facts on Canadian integrated management initiatives, marine protected areas, and marine environmental quality programs. Other programs aimed at providing online access to information include the Canadian Biodiversity Information Network and the Canadian Pollution Prevention Information Clearing House.

2.6.2 *Mobilizing Communities*

Outreach activities range from sharing information to providing tools to communities and developing joint stewardship programs. Examples of government outreach programs include Sustainable Communities Initiatives, which are designed to co-ordinate and improve involvement of citizens in sustainable management practices. The Community-Based Watershed Management program in New Brunswick provides resources and guidance to community groups to develop water- and land-use planning tools. In Atlantic Canada, a Beach Sweeps project provides communities with the necessary information to successfully conduct a *beach clean-up.* Furthermore, Fisheries and Oceans Canada has helped build community capacity through the development of a Shorekeepers' Guide for Monitoring Intertidal Habitats of Canada's Pacific Waters.

Aboriginal peoples, non-governmental organizations, industry, and communities are playing an ever-increasing role in developing stewardship programs and raising public awareness of marine-related issues. For example, the Canadian Wildlife Federation, a non-profit environmental organization, co-ordinates various oceans education programs, including Learning About Oceans, Project WILD, Fish Ways, and Habitat 2000. These programs are used by educators across Canada. In efforts to promote World Oceans Day, education kits are distributed to over 20 000 schools each year. Many community-based, non-profit organizations, such as Ocean Net in Newfoundland and Clean Nova Scotia, educate citizens on environmental responsibility and promote stewardship programs.

CHAPTER 3 LESSONS LEARNED IN DEVELOPING CANADA'S NPA

International agreements, co-operation, and information sharing are critical for the success of our global efforts to protect the marine environment and human health, and to support sustainable development. Since Canada was one of the first countries to develop a national program of action by following the GPA methodology, the international community may benefit from Canada's experiences and the lessons learned throughout the development process.

Canada's first step in developing its NPA was the release of a national discussion paper in 1996. The discussion paper, which was developed by a federal-provincial-territorial committee, was used as the basis for preliminary consultations with Aboriginal peoples and other stakeholders. It was then used as the basis for regional discussion papers and workshops to identify priorities and activities for each coastal region of Canada.

As a second step, the feedback from these discussions was used to prepare a Draft National Programme of Action for the Protection of the Marine Environment from Land-based Activities. In March 1999, the draft NPA was released for public consultation. The final NPA was published in June 2000.

Canada used the GPA framework methodology to develop its NPA. The six-step process provided a logical step-by-step approach that was found to be very comprehensive:

1. identification and assessment of problems
2. establishment of priorities for action
3. setting goals and management objectives
4. identification, evaluation and selection of strategies and actions
5. identification of criteria for evaluation of effectiveness
6. development of program support elements.

Through the NPA development process, a number of key "lessons learned" have become clear:

Follow the GPA methodology – The GPA six-step methodology is a logical and comprehensive step-by-step approach that works for national, regional, and local applications.

Be inclusive – Include all relevant stakeholders in decisions and use consensus-based processes. Implementing the required actions necessitates involvement at all levels. Pollution prevention, integrated management and environmental remediation require a concerted, collaborative effort. Provincial, territorial, and municipal governments, Aboriginal peoples, industry, the non-governmental sector, communities and the people who live in coastal areas need to take responsibility and action.

Get involved – Obtain political commitment by starting with pilot projects that help to demonstrate the success of integrated management and pollution prevention initiatives. It is important to begin with immediate priorities and work towards addressing all priorities.

Build on existing mechanisms – There is always a strong temptation to reinvent and reorganize. Build on the existing management strategies like integrated management and pollution prevention initiatives by incorporating GPA NPA priorities.

Build capacity – Develop provisions for improving coastal stewardship activities and public outreach and education. Training in data collection, environmental

audits and best environmental practices offers a good return on investment.

Ensure sustainable financing – Build on existing programs and activities and make better use of existing resources. Pursue partnerships and co-financing with the private sector and non-governmental organizations. Public-private partnerships are being used increasingly throughout the world (e.g., solid waste collection and disposal).

Be flexible – Evaluate the effectiveness of the strategies and measures being used and adapt them to reflect changing and emerging priorities if necessary. Progress reports are assisting in examining the effectiveness and efficiency of programs of action.

Consider a phased approach – Begin with immediate (high) priorities and work towards addressing all priorities.

Assign roles – Clarify what needs to be done to achieve specific goals and objectives and who is best situated to do it. Examine gaps and overlap in authority and use NPA goals and objectives to better focus and co-ordinate concerted actions.

CHAPTER 4 NEXT STEPS AND CONCLUSION

In June 2000, Canada showed its commitment to protecting the marine environment and implementing the GPA by publishing its NPA. In developing this National Report, Canada is describing the current framework for managing the marine environment and how it is helping to deliver on the NPA's goals and priorities. The Annex to this report highlights more than 90 key programs within government, non-governmental organizations and communities.

The NPA Advisory Committee has agreed on the following general approach to continue to implement the NPA:

- Integrate priorities into current programs or add new programs based on existing resources at the federal, provincial, and territorial levels as well as the local level; continue to employ a phased approach beginning with immediate priorities and moving toward addressing all priorities.

- Promote community and public engagement in the NPA by building capacity and enhancing participation through existing pollution prevention and integrated management initiatives.

- Encourage communities, industry, and non-governmental organizations to adopt and incorporate the NPA's priorities into their existing programs.

- Participate in the implementation of the two NAFTA CEC projects employing the GPA approach in the Gulf of Maine and Bight of the Californias.

- Work with Arctic Council partners to implement the Regional Programme of Action for the Arctic (RPA).

- Use opportunities such as conferences, workshops and meetings to promote awareness and understanding of the GPA and the NPA and how objectives can be integrated into current integrated management and pollution prevention initiatives.

- Provide regular reports on progress in NPA implementation.

- Provide periodic national reports to the international community (e.g. UNEP, Commissioner on Sustainable Development) on Canada's progress in implementing the GPA.

- Expand the coverage of the NPA to address issues in Northern Quebec, Hudson Bay and James Bay.

- Conduct applied research, assessment and monitoring activities to obtain knowledge needed for appropriate action.

- Keep priorities current and develop further concrete actions and capacities to achieve the goals of the NPA by developing a 2001-2006 workplan based on the direction and recommendations coming out of the 2001 GPA Intergovernmental Review Meeting.

This report and the accompanying Annex demonstrate that Canada has already made significant achievements in protecting Canada's marine environment. The report and Annex also show the importance of continued co-operation and co-ordination between governments, Aboriginal peoples, industry, non-governmental organizations, communities and the Canadian public in implementing the NPA. By incorporating the NPA's goals and priorities into these programs and using the NPA as a guide to strengthen partnerships, identify

priorities and establish new actions, Canada has the opportunity to improve on the existing system and take even greater steps to ensure the sustainable development of its coastal resources.

Over the next few years, Canada will focus on continuing to incorporate the NPA's goals and objectives into current initiatives. Because of the sheer number and extent of marine-based activities in Canada, this will take time. As the NPA is integrated into current government programs, efforts will shift to focus on improving participation of industry, non-governmental organizations, communities and the Canadian public in current initiatives, improving and expanding other partnerships with these groups, and enhancing their capacity to address local problems. Reporting on progress will also be a key element in implementing Canada's NPA.

NPA PRIORITIES

Coastal Region of Canada	High Priorities	Medium Priorities	Low Priorities
National	• sewage • POPs • shoreline construction/alteration • wetland and saltmarsh alteration	• heavy metals • oils/hydrocarbons • contaminated sediments • litter • intertidal and subtidal alteration • marine waters and coastal watershed alteration • biological alteration	• radionuclides • nutrients • mineral and sediment extraction alteration
Pacific	• sewage • POPs • heavy metals • shoreline construction alteration • wetland and saltmarsh alteration • marine waters and coastal watershed alteration	• oils hydrocarbons • contaminated sediments • intertidal and subtidal alteration • biological alteration (medium-high)	• radionuclides • nutrients • litter • mineral and sediment extraction alteration
Arctic	• sewage • POPs • heavy metals (long-range sources) • intertidal and subtidal alteration	• heavy metals (local sources) • oils hydrocarbons • shoreline construction alteration • wetland and saltmarsh alteration • marine waters and coastal watershed alteration	• radionuclides • nutrients • contaminated sediments • litter • mineral and sediment extraction alteration • biological alteration
Southern Quebec St. Lawrence	• sewage • POPs • shoreline construction alteration • wetland and saltmarsh alteration	• heavy metals • contaminated sediments • mineral and sediment extraction alteration • marine waters and coastal watershed alteration • biological alteration	• radionuclides • oils hydrocarbons • nutrients • litter • intertidal and subtidal alteration
Atlantic	• sewage • litter	• POPs • heavy metals (medium to high) • oils hydrocarbons • nutrients • contaminated sediments • shoreline construction alteration • wetland and saltmarsh alteration • marine waters and coastal watershed alteration • biological alteration (medium-high)	• radionuclides • intertidal and subtidal alteration • mineral and sediment extraction alteration

CONTACTS

Further information on Canada's NPA and marine and coastal programs can be found on the NPA Information Clearing-House at *www.ec.gc.ca/marine/npa-pan.htm*. The NPA Secretariat is also available to provide additional information, copies of documents, or answer questions regarding the NPA:

Environment Canada

Marine Environment Branch
Environment Canada
Place Vincent Massey
351 St. Joseph Blvd., 12th Floor
Hull, Quebec - K1A 0H3
Tel: (819) 953-2265
Fax: (819) 953-0913
E-mail: jim.osborne@ec.gc.ca

Fisheries and Oceans Canada

Marine Ecosystems Conservation Branch
Fisheries and Oceans Canada
200 Kent Street, 12th Floor
Ottawa, Ontario - K1A 0E6
Tel: (613) 991-1285
Fax: (613) 990-8249
E-mail: mageauc@dfo-mpo.gc.ca

LIST OF ACRONYMS

AMAP	Arctic Monitoring and Assessment Programme (under the Arctic Council)
ARET	Accelerated Reduction/Elimination of Toxics
CAFF	Working Group on Conservation of Arctic Flora and Fauna (under the Arctic Council)
EMAN	Ecological Monitoring and Assessment Network
EPPR	Working Group on Emergency Prevention, Preparedness and Response (under the Arctic Council)
GIS	Geographic Information System
GPA	UNEP's Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
GPAC	Global Programme of Action Coalition for the Gulf of Maine
LRTAP	Convention on Long-range Transboundary Air Pollution (under the UN ECE)
NPA	Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities
NPRI	National Pollutant Release Inventory
OPAT	Oceans Program Activity Tracking System
PAME	Working Group on Protection of the Arctic Marine Environment (under the Arctic Council)
POPs	Persistent organic pollutants
RPA	Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities (under the Arctic Council)
SLV 2000	St. Lawrence Vision 2000
UNCED	United Nations Conference on Environment and Development
UN ECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
ZIP	Priority Intervention Zones (Zones d'intervention prioritaires) under the St. Lawrence Vision 2000 Program

Implementing Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities

Annex: Overview of Selected Initiatives

National Report to the 2001 Intergovernmental Review Meeting on Implementation of the Global Programme of Action

November 2001

TABLE OF CONTENTS

A INTRODUCTION A-1

B CO-ORDINATING GOVERNMENT A-1

C ACTIONS SUPPORTING NPA PRIORITIES A-4

C.1 Preventing Pollution from Land-Based Activities A-4
C.2 Advancing Integrated Planning and Management A-8
C.3 Protecting and Restoring Habitat A-15
C.4 Protecting Special Areas A-18

D SUPPORTING PROGRAMS A-21

D.1 Monitoring and Assessing Trends A-21
D.2 Building Inventories and Classification Systems A-24
D.3 Improving our Science A-25

E OUTREACH AND EDUCATION A-27

E.1 Raising Public Awareness A-27
E.2 Mobilizing Communities A-30

F LEGISLATION, REGULATIONS, AND POLICIES A-33

F.1 Federal Legislation A-33
F.2 Pacific Region A-34
F.3 Arctic Region A-35
F.4 Southern Quebec/St. Lawrence Region A-38
F.5 Atlantic Region A-38

INDEX OF INITIATIVES A-41

A INTRODUCTION

The following pages are an Annex to *Implementing Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities* (NPA) — a national report to the 2001 Intergovernmental Review Meeting on Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA). This Annex describes some of the current and emerging initiatives within government that are contributing to the goals of the NPA, many of which were identified in the main report. It also highlights some of the key programs that are being led by communities and non-governmental organizations. *Although it is not possible to describe all of the oceans-related efforts of government, groups, and individuals in Canada, this Annex provides an overview of the types of programs aimed at protecting the coastal marine environment and demonstrates the importance of co-operation among all partners to achieving the goals of the NPA.* Website addresses identified throughout this Annex provide more details on these and related programs. Generally, this document follows the structure of the main report.

B CO-ORDINATING GOVERNMENT

NPA Advisory Committee

This federal provincial territorial committee is responsible for the development and implementation of Canada's NPA. The committee was established in 1996, soon after the 1995 GPA Washington Conference. The committee is co-chaired by Environment Canada and Fisheries and Oceans Canada and includes participation from Indian and Northern Affairs Canada, five coastal provinces (British Columbia, Nova Scotia, New Brunswick, Newfoundland, and Prince Edward Island) and the three territories (Yukon, Northwest Territories, and Nunavut). An NPA Secretariat facilitates committee activities.

www.ec.gc.ca/marine/npa-pan.htm

Minister's Advisory Council on Oceans

In September 2000, the Minister of Fisheries and Oceans announced the members of the Minister's Advisory Council on Oceans. The nine Council members from government, industry, organizations, academia, and Aboriginal peoples will provide the Minister with strategic, independent advice on balancing economic, environmental and social goals for sustainable development, managing the increasing complexity and diversity of ocean uses, and engaging communities and stakeholders in making decisions that affect them.

www.dfo-mpo.gc.ca/oceanscanada

Canadian Council of Ministers of the Environment

The Canadian Council of Ministers of the Environment (CCME) is a major intergovernmental forum in Canada for discussion and joint action on national environmental priorities. The Council is made up of environment ministers from the federal, provincial and territorial governments. The Council and its sub-

committees work to promote co-operation and co-ordination on interjurisdictional issues such as waste management, air pollution, toxic chemicals, environmental assessment, enforcement, and monitoring. The Council is also developing Canada-wide Standards for mercury, dioxins and furans, and petroleum hydrocarbons in soils; and national environmental quality guidelines for water, tissue, sediment, and soils that apply to fresh and marine waters.

www.ccme.ca

Canadian Council of Fisheries and Aquaculture Ministers

In September 1999, Fisheries and Aquaculture Ministers from federal, provincial and territorial governments signed the *Agreement on Interjurisdictional Cooperation*, formalizing the Canadian Council of Fisheries and Aquaculture Ministers. Under the Agreement, governments commit to work in a true spirit of co-operation and partnership under a broad oceans mandate. Current task groups focus on issues of strategic importance to Canada's fisheries and aquaculture sectors, such as fisheries management, aquaculture, capacity management, and recreational fisheries. In September 2001, the Council met to review the progress of its existing task groups and consider the creation of a new task group on oceans. The proposed mandate of this new task group will be to better co-ordinate federal, provincial and territorial efforts regarding Canada's oceans and contribute to the development and implementation of a Canadian Oceans Strategy.

www.scics.gc.ca/cinfo00/830689222_e.html

Georgia Basin–Puget Sound Task Force

Launched in 1994, the Task Force includes representatives from British Columbia, the federal government, U.S. state and federal agencies, and environmental and Aboriginal groups. The Task Force has completed a number of joint activities including transboundary strategies on marine plants and animals, marine protected areas, non-indigenous species, and nearshore habitat protection. The Task Force is currently working on a transboundary strategy for control of toxic chemicals. The Task Force also organizes transboundary workshops on activities such as research and monitoring, indicators of ecosystem health, and marine protected areas.

www.wa.gov/puget_sound/shared/shared.html

Mackenzie River Basin Board

The Mackenzie River Basin Board is a forum for co-operative management of water within the huge Mackenzie River Basin (one sixth the area of Canada and the major riverine input to the Canadian Arctic marine environment). The Board was formed under the Mackenzie River Basin Transboundary Waters Master Agreement, which was signed by the governments of Canada, British Columbia, Alberta, Saskatchewan, Yukon, and the Northwest Territories. Aboriginal groups are also active on the Board. The Parties are committed to maintaining the ecological integrity of the aquatic ecosystem, managing the use of water resources in a sustainable manner, managing the use of water resources provided such use does not unreasonably harm the ecological integrity in another jurisdiction, providing for early and effective consultation, and resolving issues co-operatively.

www.MRBB.ca.

Northern Co-Management Boards

Public government co-management boards, consisting of government and Aboriginal members, have been established in the North through various Aboriginal land claim settlements and recent resource management legislation. The objective of these Boards is to provide a co-ordinated resource management regime through land-use planning, environmental assessment and review, and the regulation of resource use.

Arctic Council

The Arctic Council is a high-level intergovernmental forum that provides a mechanism to address the common concerns and challenges faced by the eight Arctic governments and the people of the Arctic. The Arctic Council's working groups include: the Protection of the Arctic Marine Environment (PAME); Conservation of Arctic Flora and Fauna (CAFF); Arctic Monitoring and Assessment Program (AMAP); Emergency Prevention, Preparedness and Response (EPPR); and the Sustainable Development Working Group. The PAME Working Group was responsible for the development of a Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities (RPA).

www.arctic-council.org

Regional Programme of Action for the Arctic

In September 1998, the Arctic Council adopted the RPA, which was developed by the PAME Working Group. Some of the key considerations for the RPA include:

- some Arctic populations have the highest exposure in the world to certain environmental contaminants;
- various global and regional commitments such as the Convention on Long-range Transboundary Air Pollution (LRTAP) under the United Nations Economic Commission for Europe (UN ECE) and its Protocol on Persistent Organic Pollutants (POPs) address key regional problems; and
- it supports national and sub-regional efforts through capacity building and harmonized measures to address regional priority pollution sources found in the Russian Federation and the Arctic.

In implementing the RPA, a phased approach is being used since not everything can be done at once. The initial phase focuses on POPs and heavy metals which present a major pollution threat to the Arctic marine environment. In subsequent phases, the RPA will be expanded to address other contaminants and activities which destroy or degrade the Arctic marine and coastal environment. Costs are always an important consideration. The RPA is based on existing resources and programs. It also acknowledges that concrete steps to remediate major pollution sources in the Russian Federation will require major investments. In this regard, the RPA calls for a partnership conference to seek funds from donors and international funding institutions to remediate regional priority pollution sources and activities identified in the RPA and the Russian National Programme of Action for the Arctic.

www.arctic-council.org

Gulf of Maine Council on the Marine Environment

The Gulf of Maine Council on the Marine Environment was formed in 1989, comprising the provinces of Nova Scotia and New Brunswick, the States of Maine, Massachusetts, and New Hampshire, together with six federal U.S. and Canadian agencies including Environment Canada and Fisheries and Oceans Canada. The Council fosters co-operative actions within the Gulf of Maine watershed to preserve its common heritage and encourage sustainable resource use. The Council's supporting actions over the past five years have been aimed at protecting and restoring coastal and shellfish habitats, reducing toxic contaminants in the food chain, reducing debris, and protecting fishery resource habitats. The Council will release its 2001-2006 action plan in December 2001.

www.gulfofmaine.org

Collaborative Approach to Sustainability in Nova Scotia

In December 1999, a Memorandum of Understanding on "Collaborative Approaches to Community-Based Sustainability Initiatives" was signed by the federal government and provincial environment and fisheries agencies in Nova Scotia. The agreement provides the foundation for a co-ordinated and co-operative approach by the signatories to coastal zone management in support of community-based sustainability initiatives.

C ACTIONS SUPPORTING NPA PRIORITIES

C.1 Preventing Pollution from Land-Based Activities

Protocols on Persistent Organic Pollutants and Heavy Metals

Canada has signed two international protocols to reduce atmospheric emissions of 16 POPs and three heavy metals (lead, mercury and cadmium). The protocols were negotiated under the UN ECE LRTAP, which includes Canada, the United States, European countries, and countries of the former Soviet Union. The POPs and Heavy Metals Protocols are the first major multinational, legally binding agreements to place controls on emissions of these hazardous air pollutants. Effective implementation of these agreements will help to reduce exposure to major foreign sources of POPs and heavy metals. The POPs protocol requires the control of 16 substances (some are subject to more than one type of control) by eliminating production and/or use of 12 POPs, restricting the use of three POPs, and controlling atmospheric emissions of four POPs from designated industrial sectors. The heavy metals agreement requires the control of three heavy metal pollutants by using best available techniques for new plants in designated industrial sectors, reducing atmospheric emissions from existing facilities, and controlling lead content in gasoline and mercury content in alkaline batteries.

www.ec.gc.ca/press/popden_b_e.htm

Regional Mercury Action Plan

Premiers of the Eastern Canadian Provinces and Governors of the New England States have adopted a Regional Mercury Action Plan that includes progressive actions to reduce anthropogenic emissions of

mercury. The plan focuses on reductions from incinerators, the coal-fired utility sector, and major industrial sources such as chlor-alkali plants and non-ferrous metals production. Actions to reduce uses of mercury in products and processes and to safely manage and recycle mercury-containing wastes are also included. An important priority of the Action Plan is to influence reductions of mercury emissions from sources outside the region.

Working Group on the Protection of the Arctic Marine Environment

The Arctic Council's Working Group on Protection of the Arctic Marine Environment (PAME) addresses policy and non-emergency pollution prevention and control measures related to the protection of the Arctic marine environment from both land- and sea-based activities. It is focusing on implementing the RPA, promoting the application of guidelines for offshore petroleum activities, gathering information on current and future shipping activities and associated environmental effects, and maintaining an overview of the adequacy of existing international agreements.

www.arctic-council.org

Accelerated Reduction/Elimination of Toxics

This voluntary, non-regulatory initiative between government and industry (also known as ARET) seeks to virtually eliminate the emissions of 30 persistent, bioaccumulative and toxic substances and reduce another 87 toxic substances to levels insufficient to cause harm. Industry action plans, which outline how they will achieve their commitments, are publicly available. Each year, participants monitor their emissions and report their results. Results to date show that, together, 316 facilities from companies and government organizations have reduced toxic substance emissions to the environment by 26 358 tonnes — a decrease of 67% from base year levels to December 1998.

www.ec.gc.ca/aret/homee.html

Infrastructure Canada

Infrastructure Canada is a physical infrastructure initiative launched in 2000 by the Government of Canada in partnership with provincial, territorial and local governments, and the private sector. It is a six-year national program designed to improve urban and rural infrastructure in all regions of Canada. About 50% of the total project funding is expected to be invested in new green municipal infrastructure, such as water and wastewater systems, water management, solid waste management, and recycling. Under this program, the Federation of Canadian Municipalities and the National Research Council of Canada are also developing a guide to assist municipalities in identifying appropriate standards, best practices, and best available technologies for sustainable municipal infrastructure.

www.tbs-sct.gc.ca/ino-bni

Green Municipal Funds

In 2000, the Government of Canada established the Green Municipal Funds to stimulate investment in environmental technology and innovation in municipal infrastructure and environmental practices in Canadian municipalities. There are two funds under this program: the five-year, $25-million Green Municipal Enabling Fund, which supports feasibility studies, and the $100-million Green Municipal

Investment Fund, a permanent revolving fund that supports project implementation. The funds are managed by the Federation of Canadian Municipalities — the national voice of municipal governments since 1901. In fiscal year 2000-01, 35 feasibility studies and four projects were announced. Green Municipal Funds projects, which will enhance energy efficiency and the environmental performance of municipal operations, are now under way across Canada.

www.fcm.ca

Municipal Wastewater Effluent

Environment Canada is working with all levels of government and interest groups on a national scale to develop strategies to address municipal wastewater effluents. In January 2001, a National Forum was held to share ideas and examples of best practices being used to address municipal effluents in Canada. The first Multilateral Meeting on the Management of Municipal Wastewater Effluents in Canada, also held in January 2001, identified the need for a comprehensive management approach, which will likely include a control instrument, communications plan, and other tools. Technical working groups are being created to address elements identified at the meeting, such as dealing with toxic substances found in effluent.

Marine Debris Surveillance Program

Managed by PITCH-IN CANADA (a national non-profit organization), in co-operation with Environment Canada, the National Marine Debris Surveillance Program is designed to provide detailed data on the problem of marine debris by studying what is washed up on 13 beaches across Canada. PITCH-IN CANADA involves thousands of volunteers in various action programs, from initiating recycling and composting programs to cleaning up and beautifying streams, wilderness and urban areas.

www.pitch-in.ca/

Oil Spill Response Tools

The Canadian Coast Guard maintains a national marine preparedness and response system and works with other countries in accordance with international agreements. The Canadian Coast Guard relies on a number of partners within government and industry when identifying, analyzing and developing the preparedness and response activities essential to an efficient and dependable response system. Preventing spills of oil and chemicals from happening is always the primary concern. The Government of British Columbia has developed an innovative CD-ROM tool to help plan for emergency oil spills and protect Vancouver Island's shoreline. It provides extensive information on sensitive sections along the west coast of Vancouver Island and can be used to develop contingency and response plans, guide clean-up plans and training exercises, and support coastal planning and resource management.

www.ccg-gcc.gc.ca/rser-ssie/er-ie/main.htm
www.gis.luco.gov.bc.ca/mris/coasthm.htm

Waste Management Plans in Atlantic Canada

The diversion of solid waste from incinerators and landfills is an important step in the reduction of land-based sources of marine pollution, including litter and airborne pollutants. The Atlantic provinces are all

participating in waste diversion initiatives to varying degrees. The province of Nova Scotia, for example, has recently succeeded in diverting 50% of waste from disposal. The Government of Newfoundland and Labrador initiated the first province-wide waste diversion program in the mid 1990s (a deposit/refund program for beverage containers) and is now developing a comprehensive waste management strategy for the province. Prince Edward Island and New Brunswick are also quite active.

In addition to provincial government initiatives, several municipalities have banned certain materials from their landfills, such as corrugated cardboard, car batteries, untreated sewage sludge, and waste oil. Several industries have also initiated their own stewardship programs, such as return/reuse of copier cartridges, lubricants, and batteries. There are also numerous entrepreneurs who have developed or are in the process of establishing business opportunities associated with waste diversion such as green depots, materials collection and marketing, small-scale composting, metals collection and marketing, plastic wood fabrication and the manufacture of blasting mats from tires.

Model Forest Program

The Model Forest Program was established to demonstrate the diversity of forest values and the variety of partners working together to achieve sustainable forest management (5 of the 11 forests are in coastal zones). For example, the Fundy Model Forest, encompassing approximately one million acres of land, is a partnership of 31 diverse groups and organizations who are working together to ensure the environmental sustainability of our forests. Since 1992, the Fundy Model Forest Partnership has been actively involved in projects spanning nine subject areas including wildlife, water quality, biodiversity, wood supply, socio-economics, recreation, soils, management planning, education and communications. The program aims to maintain biological diversity and healthy ecosystems while meeting the needs of different stakeholders.

www.fundymodelforest.net
www.modelforest.net

New Brunswick Federation of Agriculture

The Federation of Agriculture is New Brunswick's largest farm organization and is dedicated to the advancement of the industry and its community members. The organization is a grass-roots-style producer association, supported directly by the members. It is involved in a wide range of environmental management activities including the development of best management practices, training programs, recycling programs, educational programs, and funding of specific environmental projects. The organization promotes government and industry consultation on agriculture and the environment and works in development of regulatory frameworks, as well as examining emerging issues. Environmental issues continue to be at the forefront of activities, and are promoted as everyday components of agricultural production at the individual farm level.

www.nbfarm.com

C.2 Advancing Integrated Planning and Management

Canada's Oceans Strategy

Canada's *Oceans Act* calls on the federal Minister of Fisheries and Oceans to work with all coastal and marine interests to develop a comprehensive strategy for the management of Canada's oceans, based on the principles of sustainable development, integrated management and the precautionary approach. Key objectives include: balancing economic, environmental and social goals for the sustainable development of Canada's marine environment; managing the increasing complexity and diversity of oceans use through the adoption of integrated management approaches; and continuing and enhancing the participation of coastal communities and coastal-marine users in decision-making processes. Implementation will be achieved through enhanced co-ordination at national and marine ecosystem levels and direct application of provisions in the *Oceans Act* (Marine Protected Areas, Integrated Management and Marine Environmental Quality).

www.dfo-mpo.gc.ca/oceanscanada

Integrated Management of Coastal and Marine Activities

In support of Canada's evolving Oceans Strategy, increased effort is now under way to develop integrated management plans for all activities in or affecting Canada's estuarine, coastal and marine waters, including those contributing to marine pollution and habitat degradation. Fisheries and Oceans Canada is leading and facilitating the development and implementation of these plans in partnership with the federal government, provinces and territories, Aboriginal peoples, industry, non-governmental organizations and communities. The evolving framework for the integrated planning and management of Canada's marine ecosystems extends from scales of Large Ocean Management Areas (see Table 1) to Coastal Management Areas (see Table 2), with a range of connected and nested structures providing options for regional scales of response within this spectrum. While the ultimate goal is to establish plans for all of Canada's estuarine, coastal and marine waters, pressing regional issues have initially concentrated collaborative efforts in those areas of Canada requiring priority attention.

www.dfo-mpo.gc.ca/canoceans

Table 1: Integrated Management Initiatives for Large Ocean Management Areas

INITIATIVE	LOCATION	OBJECTIVE
Eastern Scotian Shelf	An area of approximately 325,000 km^2, extending from the Laurentian Channel in the northeast to La Have Basin in the southwest out to Canada's 200 nautical mile limit.	Develop a broad-based planning and governance initiative with an offshore focus that includes all sectors and interests (e.g., fisheries, oil and gas, submarine cables, potential ocean mining, communities, academia).
Bay of Fundy	The entire Bay of Fundy-Gulf of Maine marine ecosystem (including U.S. waters).	Prepare and implement coastal and ocean action plans in collaboration with the Global Program of Action Coalition (GPAC), the Gulf of Maine Council, NAFTA Commission on Environmental Cooperation, Fisheries and Oceans Canada and other key interests.
Hudson Bay	Western half of Hudson Bay extending roughly from the Nelson River in the south to Melville Peninsula in the north, including Southampton and Coats Islands.	Develop an integrated management approach including: developing shared decision-making processes for improved management; taking steps to identify, assess and better understand the impacts of climate change; developing effective communication processes; and recognizing the role of local peoples in surveillance, monitoring and contributing knowledge on the ecosystem.
Beaufort Sea	Initial focus is the Mackenzie River estuary in the southern Beaufort Sea.	Develop effective oceans governance appropriate to the Inuvialuit settlement region; incorporate mechanisms to address multiple use issues.
West Coast Vancouver Island	Western part and coast of Vancouver Island, including to entrance of Juan de Fuca Strait.	Establish a mechanism for inclusive and shared decision-making for managing aquatic resources.
Central Coast of British Columbia	Central Coast of British Columbia, from Cape Caution to Princess Royal Island, including the area on the mainland south to Bute Inlet, and the adjacent waters to the high tide mark on Vancouver Island. The boundaries are not yet fully defined.	Develop a unified approach to land and coastal resource planning through an enhanced partnership between the Province of British Columbia, Fisheries and Oceans Canada and interested stakeholders. This process involves remote, resource-dependent coastal communities with many outside interests for both the terrestrial and coastal marine areas.

Table 2: Integrated Management Initiatives for Coastal Management Areas

INITIATIVE	LOCATION	OBJECTIVE
Îles de la Madeleine	The Îles de la Madeleine archipelago, situated in the centre of Gulf of St. Lawrence, composed of a dozen small rocky islands (a total of 202 km^2).	Conserve five important inland water bodies and promote harmonization of uses through integrated management approaches; establish one integrated management committee per water body in order to allow full participation of users and local populations; promote harmonization between the various committees contributing to the sustainable development of the management area.
Southern Gulf of St. Lawrence	The southern Gulf of St. Lawrence extending roughly from Gaspé Peninsula to the tip of Cape Breton Island including all areas southward.	Establish a coalition of government (at all levels), stakeholder groups, non-governmental groups, and industry to facilitate communication, collaborative planning and implementation of initiatives under the *Oceans Act*, environmental issues, scientific research and resource management between organizations and decision-makers to sustainably manage the resources and environment. Several projects are carried out under the St. Lawrence Vision 2000 Action Plan and the Southern Gulf of St. Lawrence Coalition on Sustainability.
St. Lawrence Upper North Shore	St. Lawrence Upper North Shore, between Les Escoumins and Rivière Betsiamites (approx. 85 km of coastline). The area extends 2-3 km inland and about 10 km offshore, which is the limit of the Regional County Municipality.	Develop an integrated management approach based on the involvement of local communities; test a simple, effective, integrated management methodology that allows full participation of stakeholders; proactively manage diverse coastal zone activities rather than reacting later. Several projects are carried out under the St. Lawrence Vision 2000 Action Plan.
Cascapedia Bay	The North-Eastern portion of Cascapedia Bay (50 km^2), within Chaleur Bay, Quebec.	Increase community involvement in efforts to maintain and improve the quality and productivity; harmonize new (ecotourism) and traditional (e.g., fishing) activities and support sustainable development within the coastal ecosystem.
Bras d'Or Lakes Estuary	An enclosed estuary in the centre of Cape Breton, Nova Scotia.	Develop and implement coastal management plans to address sewage and eutrophication problems, in partnership with Unamaki Institute of Natural Resources, all levels of government, and a wide range of community groups.
Clayoquot Sound UNESCO Biosphere Reserve	Approximately at the midpoint along the West Coast of Vancouver Island. Officially designated by the United Nations Educational, Scientific, and Cultural Organization as a Biosphere Reserve in January 2000.	Promote and demonstrate a balance between people and nature through conservation and sustainable development by supporting research, education, and training.

Ecosystem Initiatives

Ecosystem initiatives respond to the unique problems of targeted areas and communities and address environmental, economic, and social concerns. They recognize the interrelationships between land, air, water, wildlife, and human activities. Environment Canada co-ordinates several initiatives (see Table 3) in partnership with provinces and territories, other federal departments, Aboriginal peoples, industry, and communities.

www.ec.gc.ca/ecosyst/infodoc.html

Table 3: Ecosystem Initiatives

PROJECT	LOCATION	OBJECTIVE
Georgia Basin Ecosystem Initiative	The straits of Georgia and Juan de Fuca off the coast of British Columbia along with Puget Sound in Washington State.	Improve air quality, reduce and prevent water pollution, conserve and protect habitat and species and support community-based environmental and sustainability initiatives.
Northern Rivers Ecosystem Initiative	Peace, Athabasca and Slave river systems within northern Alberta and the Northwest Territories.	Protection of water quality and fish and habitat through pollution prevention, aquatic research, and watershed and land-use research.
Great Lakes Basin 2020 Action Plan	The freshwater system containing lakes Ontario, Erie, Huron, Michigan and Superior.	Restore and maintain the chemical, physical and biological integrity of the basin's waters, emphasizing activities that support a healthy environment, healthy citizens and sustainable communities.
St. Lawrence Vision 2000 Action Plan	St. Lawrence River from Ontario to Blanc-Sablon on the north shore and New Brunswick on the south shore, including the Mille-Îles, Prairie rivers and other tributaries, Lac des deux Montagnes, Chaleur Bay, Anticosti Island and the Îles de la Madeleine.	Protect ecosystem and human health through community involvement and industrial and urban clean-up.
Atlantic Coastal Action Program	Fourteen local watershed- and coastal-based ecosystems throughout the four Atlantic provinces, and three additional ecosystems that include the southern Gulf of St. Lawrence, Labrador, and the shared Canadian–U.S. waters of the Bay of Fundy and the Gulf of Maine.	Restore and sustain local ecosystems through community-based coalitions that work towards the control of land-based activities (e.g., domestic sewage) for the protection of the marine environment.
Northern Ecosystem Initiative	Encompasses ecosystems within the Yukon, Northwest Territories, Nunavut, lowlands of Manitoba and Ontario, northern Quebec and Labrador.	A partnership-based initiative focused on advancing knowledge, tools and awareness of northern ecosystem response to climate change, development activities and contaminants while contributing towards the development of a northern monitoring network.

St. Lawrence Vision 2000

The St. Lawrence Vision 2000 (SLV 2000) is a partnership between the federal government, the Government of Quebec, Stratégies Saint-Laurent (a non-governmental organization) and communities. It seeks to protect the St. Lawrence ecosystem and human health and involve riverside communities in recovering the uses of the St. Lawrence with a view to sustainable development.

Results from the first 10 years of the program demonstrate the success of collaboration among all partners. Results include:

- significant reduction of toxic liquid effluents discharged by the 106 priority industries targeted by the SLV 2000 (50 plants reduced toxic liquid effluents by 96% in Phase I);
- implementation of 27 recovery plans for species at risk or endangered species, including a plan for the Beluga whale;
- creation of the Parc marin Saguenay–Saint-Laurent, the first federal-provincial marine park in Canada;
- creation of 13 reports covering the priority areas for action related to the SLV 2000;
- creation of the 14 ZIP committees; and
- distribution of the first summary report on the state of the St. Lawrence.

www.slv2000.qc.ec.gc.ca/index_a.htm

Atlantic Coastal Action Program

The Atlantic Coastal Action Program (ACAP) supports and works in partnership with a number of community-based coalitions that are leading efforts to restore and sustain 14 coastal ecosystems.

The Atlantic Coastal Action Program has demonstrated several innovative achievements:

- an additional 0.7 square km^2 are available for clam harvesting in southwestern New Brunswick in 2001; and
- an oil spill response program for addressing small oil spills using local resources in Lunenburg/Mahone Bay, Nova Scotia, is serving as a model for other communities across Canada.

www.ns.ec.gc.ca/community/acap/

Federal Sustainable Development Strategies

In 1995, each federal department was required to table a sustainable development strategy, including concrete goals and a plan of action to integrate sustainable development into policies, programs and operations. Some federal departments are already working to incorporate NPA goals and objectives into these strategies.

www.oag-bvg.gc.ca/domino/cesd_cedd.nsf/html/menu6_e.html

Small Craft Harbours Program

This program, through its community-managed fishing harbours, provides opportunities to demonstrate and promote coastal zone management and awareness. Fisheries and Oceans Canada works with volunteer operators of public harbour facilities to develop environmental management plans. These plans encompass best management practices, due diligence, issues awareness and community waterfront planning, consistent with sound and sustainable harbour management practices and coastal zone planning principles. Recent examples of projects aligned with the NPA include harbour-side prevention of vessel sewage discharges, promotion of oil spill kits and training sessions for harbour managers, upgrades to waterfront areas to reduce non-point source pollution, piloting of new dredging approaches, and monitoring support for habitat creation projects.

Regional Growth Strategy in British Columbia

This project is a strategic planning process that incorporates social, economic, and environmental goals in planning decisions. The goal is to encourage innovation in co-ordinated, interjurisdictional management of growth-related challenges and to foster practical, creative and co-operative approaches to regional-level issues. These regional growth strategies often support integrated planning and management goals under the NPA such as reducing degradation to the marine environment, protecting human health, and promoting conservation and sustainable use of the marine environment.

www.marh.gov.bc.ca/GROWTH/PUBLICATIONS/GRANT

Fraser River Estuary Management Plan and Burrard Inlet Environmental Action Program

These programs are partnerships with local port authorities and federal, provincial and local governments to co-ordinate planning and decision-making in the Burrard Inlet and Fraser River Estuary. The primary objectives of the Fraser River Estuary Management Plan are to conserve and enhance the environmental quality of the river and estuary to sustain healthy fish, wildlife, plants and people; respect and further the estuary's role as the social, cultural, recreational and economic heart of the region; and encourage human activities and economic development that protect and enhance the environmental quality of the estuary. The Burrard Inlet Environmental Action Program aims to reduce existing contaminant discharges; control future discharges to limit the potential for adverse environmental impacts; pursue the protection and enhancement of habitat values; and provide, where appropriate, remedial measures for existing impacts.

www.bieapfremp.org/

Fraser Basin Council

The Fraser Basin Council is a not-for-profit, British Columbia society. The Fraser Basin is an area that covers one quarter of British Columbia, is home to 2.65 million people and contributes 80% to the provincial economy. The Council was established in 1997 to enable individuals, organizations and governments of the Fraser Basin to work together to ensure that the Basin is a place where social well-being is supported by a vibrant economy and sustained by a healthy environment. The Council's Board consists of 36 directors from federal, provincial, local and Aboriginal governments and private and non-government interests. Current projects include sustainability indicators, debris management, and habitat stewardship.

www.fraserbasin.bc.ca

Fraser River Action Plan

Environment Canada and Fisheries and Oceans Canada, together with a large number of partners, completed the Fraser River Action Plan in March 1998. Results included:

- the protection of almost 650 km^2 of wild bird habitat;
- a reduction in the release of toxic wood preservatives by 90%;
- the implementation of best management practices and pollution prevention plans in many business and industry sectors;
- significant scientific research on a diversity of issues, including the sub-lethal effects of pulp mill effluent on fish, and effects of forest harvesting on fish habitat;
- initiation of a stewardship program to promote environmental responsibility among various stakeholder groups and the public;
- an extensive library of guidelines and reports on environmental quality, habitat, and pollution abatement.

Priority Intervention Zones

As part of the St. Lawrence Vision 2000, the Priority Intervention Zones program (also known as ZIP committees) involves 14 communities, six of which are in marine areas. The program fosters local initiatives for the protection, restoration, conservation and enhancement of the river's resources and uses, consistent with sustainable development. The ZIP committees were developed in collaboration with the Canadian and Quebec governments and Stratégies Saint-Laurent, a non-governmental organization that has been active in co-ordinating the efforts of riverside communities on the St. Lawrence River since 1989. This unique alliance has allowed these riverside communities to identify their local priorities for action and to develop their own ecological rehabilitation action plans. Some examples of actions include beach sweeps, lagoon restoration, eelgrass planting, and erosion control.

www.slv2000.qc.ec.gc.ca/zip/accueil_a.htm

Southern Gulf of St. Lawrence Coalition on Sustainability

This coalition is a multi-stakeholder organization whose mission is to promote regional coastal zone sustainability. As a forum of partners, the Coalition provides the tools to facilitate communications, networking and information sharing; organizes and facilitates interprovincial, interregional and sectoral meetings; and recommends priority strategies, policies and regulations. It provides a forum for partners who share the same vision and want to implement priority solutions to enhance the sustainability of the Southern Gulf of St. Lawrence.

Coastal Zone Canada Association

This Association is a national non-profit society of coastal zone management professionals and others interested in and supportive of integrated coastal zone management in Canada and abroad. Incorporated in 1993, its objectives are to sponsor conferences and promote improvements in integrated coastal zone management practices. Conferences are held every two years on the even year. The fourth conference of this series, entitled "Coastal Stewardship: Lessons Learned and the Paths Ahead" was held in St. John, New Brunswick, in September 2000 and included two sessions devoted to the GPA, including lessons learned in applying the GPA at the global, national, regional, and local levels and sharing information on

sewage/municipal wastewater. The fifth conference will take place in the Great Lakes basin in Hamilton, Ontario, June 2002.

www.dal.ca/acziscl/czca-azcc/index.htm

Atlantic Coastal Zone Information Steering Committee

This Steering Committee, established in 1992, provides a focus and forum for the development and co-ordination of a regional coastal zone information infrastructure and the promotion of integrated coastal zone management initiatives in Atlantic Canada. Membership includes the four Atlantic provinces, seven federal departments, First Nations, the private sector, and academia. The Committee maintains an extensive, user-friendly website. Working groups co-ordinate activities in the region, such as the development and maintenance of a metadata directory (data or information about data) and an inventory of coastal mapping; communications outreach; data exchange and standards; and integrated coastal management.

www.dal.ca/aczisc/aczisc

Bay of Fundy Ecosystem Partnership

The Bay of Fundy Ecosystem Partnership facilitates and enhances communication and co-operation among all citizens, government, and organizations interested in understanding and sustainably using and conserving the resources, habitats and ecological processes of the Bay of Fundy. Sixteen active working groups address issues such as eutrophication and nutrients, toxic chemicals, integrated coastal management and marine protected areas. Timely information exchange among the diverse and widely dispersed members is enhanced by a comprehensive website.

www.auracom.com/~bofep

C.3 Protecting and Restoring Habitat

Habitat Restoration and Salmon Enhancement Program

Led by Fisheries and Oceans Canada, the Habitat Restoration and Salmon Enhancement Program deals with fish habitat management, salmon enhancement, resource and watershed stewardship, and habitat restoration on Canada's Pacific coast. Primary goals are improving the quality and quantity of habitat available for salmon and developing and strengthening partnerships. Since 1996, the program has funded some 330 projects in areas such as fish habitat improvement, riparian planting, cattle fencing, mapping of sensitive areas, and stock assessment.

www.dfo-mpo.gc.ca/habitat/home_e.htm

National Fish Habitat Management Program

The mandate of the National Fish Habitat Management Program is to protect and conserve fish habitat in support of Canada's coastal and inland fisheries resources, and conduct environmental assessments under

the *Canadian Environmental Assessment Act* to support regulatory decisions by Fisheries and Oceans Canada under the habitat provisions of the *Fisheries Act*, the *Navigable Waters Protection Act*, and the *National Energy Board Act*.

Policy for the Management of Fish Habitat

Several directives and guidelines under the Policy for the Management of Fish Habitat provide additional guidance to staff from Fisheries and Oceans Canada and developers to ensure that new development projects protect and conserve fish habitat:

- What the Law Requires
- Habitat Conservation and Protection Guidelines 1998
- Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat
- Guidelines for Attaining No Net Loss

www.dfo-mpo.gc.ca/publication_e.htm

Watershed Restoration Program in British Columbia

British Columbia's Watershed Restoration Program provides an important opportunity to improve water quality and restore fish habitat impairment occurring as a result of past forest harvesting practices. In its first five years, Forest Renewal British Columbia (a Crown corporation) has invested more than $300 million in watershed restoration. Assessment has been completed on some 860 watersheds, restoration work has been completed in 150 watersheds and some restoration work has been done in a further 320 watersheds. In 1999-2004, the corporation expects to complete restoration in a further 130 of the highest priority watersheds.

www.elp.gov.bc.ca/frco/programs/wrp/index.htm

Protection of Sensitive Streams in British Columbia

The Province of British Columbia has several programs aimed at protecting vulnerable streams and rivers. The *Fish Protection Act* prohibits the construction of new dams on 15 major rivers in the province, most of which are near the coast. In 2000, the province designated 15 "Sensitive Streams" which require the consideration of fish and fish habitat in making decisions pertaining to those streams. Two of the streams are undergoing Recovery Plans as part of a pilot project. The province also approved regulations that require municipalities located on the east side of Vancouver Island, the Lower Mainland, and the Southern Interior to incorporate streamside protection policies into certain municipal regulatory processes within five years. Prohibitions on introducing debris into streams, and protection measures for streamflows, are currently being drafted.

www.elp.gov.bc.ca/fsh/protection_act/sensitive_streams/index.html

Britannia Mine Clean-up Agreement in British Columbia

A partnership agreement between industry and the B.C. government covering costs estimated at $60 million to $75 million will clean up the former Britannia mine site, which drains polluted water into Howe Sound, 50 km north of Vancouver. The clean-up plan includes provisions for treating the acid rock

drainage as well as contaminated soil at the site and sediments in Howe Sound. Treatment is expected to start in early 2002. The plan includes several partners: the Fraser Basin Council is formally the applicant for the infrastructure grant; the Squamish-Lillooet Regional District supports the grant application; and Environment Canada has helped with technical and scientific assessments.

Conservation of Arctic Flora and Fauna

Founded under the Arctic Council, the Conservation of Arctic Flora and Fauna (CAFF) program addresses the special needs of Arctic species and their habitats. The main goals are to conserve Arctic flora and fauna, their diversity and their habitats; to protect the Arctic ecosystem from threats; to seek to develop improved conservation management, laws, regulations and practices for the Arctic; to collaborate for more effective research, sustainable utilization and conservation; and to integrate Arctic interests into global conservation fora. The program's Strategic Plan for the Conservation of Arctic Biological Diversity is built around five program objectives addressing: biodiversity monitoring; conservation of genetic resources, species and habitats; establishment of protected areas; conservation outside protected areas; and integration of conservation objectives into economic sectors through enhanced information exchange.

www.grida.no/caff

Northern Contaminated Sites Management Program

Some 2000 contaminated sites have been identified throughout the Arctic. Some of these sites are known to contain POPs and heavy metals, which are high priorities under the NPA. Many of these sites are located on or near the coast and islands. Of the total sites, 39% have been remediated or are being risk managed, 48% have been assessed and require no further action, 8% still require assessment and 5% require remediation or risk assessment. The ultimate objective is to remediate any hazardous conditions at such sites through a program of risk assessment, site prioritization and effective program management. Towards that end, Indian and Northern Affairs Canada is developing a prioritization plan and an overall management plan by December 2001, and an environmental assessment for at least five of the priority sites by 2002.

www.inac.gc.ca

Agriculture and Environmental Resource Conservation Program in Prince Edward Island

Prince Edward Island's Agriculture and Environmental Resource Conservation Program is a three-year program (1999-2001) to assist farmers in making their farm operations more productive and sustainable, while achieving compliance with environmental protection legislation. The program provides financial and technical assistance for a wide range of on-farm conservation projects, such as manure storage, structural soil erosion control practices, pesticide and petroleum storage, and milk-house waste management systems. By the year 2003, all watercourses in Prince Edward Island will be inaccessible to livestock, thereby helping to maintain and improve the quality of the marine environment.

www2.gov.pe.ca/af/acrc/index.asp

Wildlife Habitat Improvement Program in Prince Edward Island

The Wildlife Habitat Improvement Program is designed to support the protection and enhancement of wildlife habitats. It provides direct financial assistance and technical support to non-governmental organizations and community groups involved in wildlife habitat initiatives. The program is supported by regional wildlife habitat co-ordinators and a wildlife biologist. While there are a variety of eligible projects, current priorities address the protection and management of watershed riparian zones, soil erosion sources affecting wetland and stream habitats, establishment and maintenance of wildlife corridors, and adverse habitat conditions in streams.

C.4 Protecting Special Areas

Marine Protected Areas

Fisheries and Oceans Canada, in collaboration with provinces and territories and other key interests, is establishing Marine Protected Areas across Canada. Under the *Oceans Act*, they may be established for the conservation and protection of commercial and non-commercial fisheries and their habitats, endangered or threatened species, unique habitats, or marine areas of high biodiversity or biological productivity. Since 1998, Fisheries and Oceans Canada has announced 12 Areas of Interest (see Table 4) for establishing Marine Protected Areas on Canada's Pacific and Atlantic coasts with additional areas, including the Arctic, under consideration. The department is also leading the development of a national system of Marine Protected Areas in co-operation with other federal departments on behalf of the federal government.

www.dfo-mpo.gc.ca/canoceans

Marine Conservation Areas

Parks Canada has implemented a National Marine Conservation Areas program that seeks to protect and conserve representative examples of Canada's diverse marine environments, based on a framework of 29 marine natural regions spanning the Arctic, Atlantic and Pacific oceans, and the Great Lakes. National Marine Conservation Areas include the seabed, the water above it, the associated wildlife populations, and may also include wetlands, estuaries, islands and other coastal lands. They are established in collaboration with provincial and territorial governments, other federal departments and local communities, citizens, and Aboriginal peoples. There are currently three national marine conservation areas: Fathom Five National Marine Park (112 km^2) in Georgian Bay, Ontario; Gwaii Haanas National Marine Conservation Area Reserve (3570 km^2) off the Queen Charlotte Islands in British Columbia; and Saguenay–St. Lawrence Marine Park (1138 km^2) — the first federal-provincial marine park in Canada — at the confluence of the Saguenay Fjord and St. Lawrence Estuary in Quebec.

parkscanada.pch.gc.ca/nmca/nmp_e.htm

Table 4: Areas of Interest for Marine Protected Areas

AREA OF INTEREST	LOCATION	OBJECTIVE
Bowie Seamount	180 km west of Queen Charlotte Islands, British Columbia	Protect a unique habitat (shallowest seamount in Canada's Pacific waters) and conserve significant populations of rockfish, sablefish and halibut.
Endeavour Hot Vents	250 km southwest of Vancouver Island, British Columbia	Protect and conserve an area of unique and biologically diverse habitat.
Gabriola Passage	Gulf Islands of British Columbia	Conserve and protect commercial and non-commercial fishery resources, particularly rockfish.
Southern Beaufort Sea	Three areas in the Mackenzie River estuary	To provide protection to important beluga whale and anadromous fish habitat in order to maintain healthy populations of these species in the area.
Race Rocks	17 km southwest of Victoria, British Columbia	Conserve and protect an area of high biodiversity.
Manicouagan Peninsula	Confluence of Manicouagan, Betsiamites, aux-Outardes and St. Lawrence River systems, Quebec	Conserve and protect the highly diverse and productive estuary and marine ecosystems of the Manicouagan Peninsula.
Musquash Estuary	20 km west of Saint John, New Brunswick	Protect one of the last ecologically intact and biologically diverse salt marsh complexes in the Bay of Fundy.
Basin Head	Eastern tip of Prince Edward Island	Conserve and protect a unique strain of Irish moss and the biologically diverse ecosystem that supports it.
Sable Gully	200 km east of Sable Island, Nova Scotia	Protect rare species such as northern bottlenose whales, corals and deep sea fish, which live in the Gully.
Eastport Peninsula	Northeast coast of Newfoundland	Implement and evaluate lobster conservation and protection measures, as well as protect other important species and their habitats, including sea urchins and lumpfish.
Gilbert Bay	Labrador's southeast coast, Newfoundland	Conserve and protect a unique cod stock and its habitat located in Gilbert Bay, Labrador.
Leading Tickles	Notre Dame Bay, Newfoundland	Conserve and protect species such as lobster and flounder and their supporting habitats.

Wildlife Areas and Migratory Bird Sanctuaries

Environment Canada works closely with other federal departments, provincial and territorial governments, Aboriginal peoples, private organizations, and individuals to ensure that nationally important wildlife habitat areas are protected as National Wildlife Areas or Migratory Bird Sanctuaries. Together, these sites protect some 118 000 km^2 in Canada, an area more than twice the size of Nova Scotia. About half of the bird sanctuaries and one third of the wildlife areas are located in coastal areas. They contain a wide diversity of habitat of national and even international importance. For example, at migration time, 10% of the world's population of Semipalmated Sandpipers carpet the beaches and mudflats of the National Wildlife Areas in Shepody, New Brunswick and in Chignecto, Nova Scotia.

www.cws-scf.ec.gc.ca/hww-fap/nwambs/nwambs.html

Man and the Biosphere Reserves

The United Nations Educational, Scientific and Cultural Organization (UNESCO) establishes biosphere reserves based on areas representing an important portion of the world's ecosystem. These reserves encourage community engagement by requiring consultations prior to the designation of a reserve. Each reserve reflects the local natural and political structures and consists of a natural non-exploited state (national or provincial park), a buffer zone that limits human activity, and the transitional zone which facilitates a co-operative program incorporating community tradition into the reserve. In Canada, there are ten biosphere reserves. Two organizations, the Canadian Biosphere Reserves Association and the World Network of Biosphere Reserves, have been established to encourage collaborative sharing of ideas and experiences in these Canadian biosphere reserves, such as monitoring, climate change, and ecotourism.

Protected Areas Strategy in the Northwest Territories

In 1999, the Government of the Northwest Territories and the federal Department of Indian Affairs and Northern Development put into place a Protected Areas Strategy. It recognizes the special natural and cultural areas in the Northwest Territories that need protection beyond that provided by the existing system of federal and territorial programs and the special significance of protected areas to Aboriginal peoples. The goals of the strategy are to protect special natural and cultural areas and to protect core representative areas within each ecoregion of the Northwest Territories. The strategy also helps to focus attention on the need for Marine Protected Areas. To date, no sites have been formally protected but several have been nominated.

www.gov.nt.ca/RWED/pas

Protected Areas Strategy in New Brunswick

The New Brunswick Protected Areas Strategy was conceived with the intention of preserving biodiversity on three different scales: the Acadian forest ecozone, the ecoregion scale and the fine scale. The strategy involves the identification of several large land areas. It also recognizes the importance of protecting biodiversity on a site-specific scale. Activities such as forestry, mining and the development of new infrastructure are prohibited within the boundaries of these areas; however, they continue to remain open to such activities as boating, fishing, hunting, camping, and scientific research. The areas

are overseen by a Provincial Natural Areas Steering Committee which is represented by individuals from forestry, mining, and environmental sectors as well as individuals from student advisory committees, Aboriginal peoples and the Department of Natural Resources and Energy.

www.gnb.ca/0078/Index.htm

D SUPPORTING PROGRAMS

D.1 Monitoring and Assessing Trends

Marine Environmental Quality Program

The Marine Environmental Quality program under the *Oceans Act* is serving to build knowledge bases, identify knowledge gaps and orient research priorities; develop marine environmental quality indicators and monitoring protocols; and propose objectives and guidelines for effective ecosystem-based planning and management. The program will help to ensure that the types and levels of activities are safe for the marine environment. Currently, there are projects under way on each of Canada's coasts, involving partnerships with other federal departments and agencies, other levels of government, academia, industry and other interested parties. Following are some examples of projects.

www.dfo-mpo.gc.ca/canoceans

(a) Tariuq Monitoring Program

As part of the Beaufort Sea Integrated Management Planning Initiative, Fisheries and Oceans Canada held community workshops in Tuktoyaktuk and Aklavik in Canada's Arctic to set objectives, prioritize relevant issues of marine environmental health, form working groups to select indicators, and design and implement a community-based monitoring program in areas traditionally used for hunting of marine mammals or fishing by each of the communities. In its initial stages, a few indicators will be selected in order to assess and modify the program. Once established, the Tariuq program (tariuq is the word for oceans in Inuktituk — the prevalent language of northern Aboriginal peoples in Canada) will provide long-term monitoring that, together with other monitoring programs, will provide an indication of the health of the marine environment.

(b) Assessment of the St. Lawrence Marine Environment

This program monitors the concentrations of metal and organic contaminants that are known to have harmful effects on fish species harvested in the St. Lawrence Estuary and the Gulf of St. Lawrence and the Saguenay Fjord, where a winter sport fishery generates several million dollars in economic activity. The data are also used to track the evolution of mercury contamination in snow crab and northern shrimp and species subject to ice fishing in the Saguenay Fjord. The program also monitors the levels of metal and organic contaminants in non-commercial species that play a significant role in the ecosystem, such as marine mammals.

(c) Impacts of Sewage Discharge on the Marine Environment in Newfoundland

Fisheries and Oceans Canada has developed an electronic database of over 600 sewage outfalls that discharge into the marine environment in Newfoundland. A geographical information system (GIS) tool is being developed to map sewage outfall data with respect to other marine resources, which will help in identifying priorities and making decisions.

Ecological Monitoring and Assessment Network

Co-ordinated by Environment Canada, the Ecological Monitoring and Assessment Network (EMAN) is a co-ordinated network of long-term integrated ecosystem research sites and monitoring networks which detects, describes and reports ecosystem changes in all 15 terrestrial and 5 marine ecozones in Canada. The EMAN provides evidence of changes in ecosystems. It is a partnership among federal government departments, provincial agencies, universities, non-governmental organizations, industry, and the interested public, including the volunteer sector. Specifically, the EMAN works to deliver:

- cross-disciplinary and interjurisdictional reports of ecosystem status and trends in "working landscapes" and at ecozone or national scales;
- the EMAN Observation Programs which provide methodologies and Internet-based tools empowering community groups, schools, non-governmental organizations, and the Canadian public to collect and contribute reliable information on ecosystem changes;
- an integrated Information Management System which includes the interactions and the dissemination of EMAN information, publications, metadata, and websites; and
- standardized ecosystem monitoring protocols.

www.eman-rese.ca

National Pollutant Release Inventory

Environment Canada's National Pollutant Release Inventory (NPRI) provides Canadians with access to pollutant release information for facilities located in their communities. The Inventory also assists governments and others in identifying priority areas for action, encourages industry to take voluntary measures to reduce releases, allows for tracking of progress in the reduction of releases, and supports a number of regulatory initiatives across Canada.

www.ec.gc.ca/pdb/npri/

Water Quality Monitoring

Federal, provincial, and territorial governments co-operate in long-term water quality monitoring in several jurisdictions in Canada, including British Columbia, Northwest Territories, Yukon, Nunavut, Prince Edward Island, and Newfoundland. Sites monitored are usually freshwater rivers and lakes, which often act as the collection and delivery system for many land-based sources of marine pollution. The objectives of these programs are to track background trends in water and monitor watersheds for stream flow, groundwater level, and water quality.

Shellfish Sanitation Program

Responsibility for the Canadian Shellfish Sanitation Program is shared between Environment Canada, the Canadian Food Inspection Agency, and Fisheries and Oceans Canada. The Program is designed to protect consumers of bivalve molluscan shellfish (e.g., clams, mussels, oysters) from health hazards associated with microbial, biotoxin, and chemical contamination. It ensures all shellfish growing areas meet approved water quality criteria and all shellfish sold commercially are harvested and handled in an approved manner. As part of this program, Canada surveys and classifies shellfish areas to identify areas of risk from sources of fecal contamination, particularly human sources from failing septic systems and sewage treatment plants. Canada also surveys areas for biotoxins such as paralytic shellfish poison. Based on the information gathered, shellfish growing areas are opened or closed to harvesting. Environment Canada is working together with provinces, First Nations, community groups, and industry to reopen shellfish harvesting areas that were closed as a result of sewage discharges into the marine environment. For example, last year (2000 season) in the Atlantic Region, these efforts resulted in the conditional reopening of 7 km^2 of closed clam-flats in the L'Etang estuary of New Brunswick.

www.pyr.ec.gc.ca/ep/shellfish/shell_e.htm
www.ns.ec.gc.ca/epb/sfish/sfish.html
www.ns.ec.gc.ca/epb/sfish/cssp.html

Northern Contaminants Program

The Northern Contaminants Program was established in response to studies that showed the presence of contaminants in the Arctic ecosystem. Many persistent organic pollutants, heavy metals, and radionuclides have no Arctic sources and yet some are found at high levels in animals at the top of the Arctic food chain and in humans. Indian and Northern Affairs Canada manages the program in partnership with other federal departments, the three territorial governments, Aboriginal organizations, and university researchers. Phase I (1992-1997) of the program determined the main sources of contaminants, their transport pathways and fate, as well as their levels and distribution within Arctic ecosystems and humans. Phase II (1998-2003) is expanding human health research, monitoring the health of Arctic peoples and ecosystems, developing effective community dialogue, and continuing the work on international agreements to control contaminants.

www.ainc-inac.gc.ca/NCP/index_e.html

Arctic Monitoring and Assessment Program

The primary objective of the Arctic Council's Working Group on Arctic Monitoring and Assessment Program (AMAP) is "providing reliable and sufficient information on the status of, and threats to, the Arctic environment, and providing scientific advice on actions to be taken in order to support Arctic governments in their efforts to take remedial and preventative actions relating to contaminants." The program has produced an overall assessment report on the state of the Arctic environment and is working on an update to that report. The working group is contributing to the preparation of an Arctic Climate Impact Assessment and a multilateral co-operative project to phase out the use of PCBs and manage PCB-contaminated wastes in the Russian Federation.

www.amap.no

Gulf of Maine Environmental Monitoring Plan

In 1989, the Gulf of Maine Council on the Marine Environment endorsed the concept of a Gulf-wide environmental health monitoring project. The intent of the Plan is to provide environmental resource managers with information to support sustainable use of the Gulf and allow assessment and management of risk to public and environmental health from current and potential threats. A key component of the plan is Gulfwatch, which is a marine contaminant monitoring program that uses blue mussels (*Mytilus edulis*) as an indicator for habitat exposure to organic and inorganic contaminants and serves as the basic framework for a long-term Gulf of Maine monitoring strategy. Each year since 1991, Gulfwatch has collected and reported contaminant concentrations and trends. Recent reports indicate that contamination in the Gulf of Maine is not widespread, although there are some local "hot spots". There is a trend for improved water quality as you move north from the Gulf of Maine into the Bay of Fundy. These reports are available online.

www.gulfofmaine.org/library/gulfwatch/index.html

D.2 Building Inventories and Classification Systems

National Contaminants Information System

The National Contaminants Information System is a computerized warehouse of data and information collected since the 1970s on toxic chemicals in fish, other aquatic life, and their habitats. Recognizing the different requirements of the users, the database is set up to provide administrative information through a directory containing information about projects and the people involved in them, summary information about archived data, and current data. All data and information are accessible to authorized users with a password. Others may request information or access by completing a request form available on the website.

www.meds-sdmm.dfo-mpo.gc.ca/meds/Prog_Nat/NCIS/homemain_e.htm

Coastal Resource Mapping Project

Conducted by Fisheries and Oceans Canada in partnership with community-based organizations, the Coastal Resource Mapping Project collects and collates traditional knowledge about fisheries resources. In the southern Gulf of St. Lawrence alone, over 1000 fishers have been interviewed for their knowledge of their fisheries. This information is digitized and distributed back to the community as hard-copy maps and soon through the Internet. This tool is being used to develop resource enhancement areas, plan resource surveys, identify critical or sensitive habitats, develop conservation plans, and assist in resolving resource-use conflicts. The information is also used in the assessment of projects that may affect the livelihood of communities.

Coastal Resource Inventories

Several provinces are developing inventories of their coastal resources. Newfoundland and Labrador initiated comprehensive community-based coastal resource inventories of the province's 29 000 km of coastline in the spring of 1996. These inventories are based on the collection of Traditional Ecological

Knowledge, and are conducted by Fisheries and Oceans Canada in partnership with community-based organizations. Marine and coastal fisheries resource information, as well as data on infrastructure, culture, tourism, and recreation, are collected through interviews with local community members, based on their current and historical interactions with these resources. Because these inventories incorporate direct knowledge of many stakeholders, they are very useful integrated management tools. To date, 15 projects have been completed with four still ongoing. This represents 100% coverage of the insular portion of the province.

The Province of British Columbia is conducting a biophysical coastal inventory of its 26 000 km of shoreline. It consists of a biophysical inventory of coastlines using a combination of helicopter video and field sampling, the acquisition of biological and human use information, and the creation of detailed coastline maps. The datasets are also applied to regional projects, including the Land and Resource Management Plans, the Georgia Basin Ecosystem Initiative, and Salmon Aquaculture Review. The Province of New Brunswick is developing a database that spatially identifies coastal features, other natural phenomena, and related built environment structures (e.g., breakwaters) in the coastal zone of that province. Such coastal mapping provides important tools for the development of sustainable coastal management strategies. Other digital data on hydrography, roads, property mapping, agricultural and forest lands, terrain models, geomorphology and soils can be integrated to provide a wealth of information for planning purposes.

www.gis.luco.gov.bc.ca/mris/resource.htm
www.gnb.ca/snb

Habitat and Contaminant Inventories in Newfoundland

Fisheries and Oceans Canada is developing several habitat and contaminant inventories in Newfoundland:

- *Marine Habitat Classification System* – a standardized method to classify and quantify inshore, nearshore, and offshore marine habitats that could be affected by development practices; includes a detailed compilation of requirements for marine fish species habitat.
- *Spawning Database for Species Supporting Fisheries in Newfoundland's Water* – compilation of data for the development of spatial maps outlining sensitive spawning areas and spawning times of species supporting fisheries in Newfoundland's offshore and coastal waters.
- *Marine Contaminant Database* – data on the levels of contaminants (e.g., polychlorinated biphenyls, metals and hydrocarbons) in marine sediments for 119 community harbours.
- *Profiles on Sources of Contamination* – an electronic database of potential point sources of marine contaminants, currently containing 355 point source profiles and 200 community profiles including map locations, photographs, overviews of operation and potential contaminants.

D.3 Improving our Science

Environmental Science Strategic Research Fund

Managed by Fisheries and Oceans Canada, this fund co-ordinates and funds research on the capacity of habitats to sustain fish production and on the impacts on aquatic ecosystems from activities such as

physical disruption, the introduction of contaminants, and the introduction of exotic species. Examples of research studies include:

- effects of sediment on fish and fish habitats;
- Strait of Georgia contaminant transport;
- minimizing risks of non-indigenous aquatic species in Canadian waters from ballast water;
- fate and effects of chemical dispersants on oil spills;
- dispersion of municipal effluents in the St. Lawrence River estuary;
- environmental effects and remediation of contaminants in Sydney Harbour, Nova Scotia;
- biological impacts of sewage contaminants discharged into Halifax Harbour;
- impacts of marine sewage discharge from small rural municipalities in Newfoundland;
- productive capacity of eelgrass habitat and effects on juvenile marine fish; and
- impacts of petroleum development on the environment of the Grand Banks of Newfoundland.

Toxic Substances Research Initiative

Launched in 1998, the Toxic Substances Research Initiative is managed by Health Canada and Environment Canada. The objective of this initiative is to advance knowledge on toxic substances and their adverse effects while focusing on emerging issues not adequately addressed by existing research. The initiative enhances existing research partnerships and fosters new alliances between government and non-governmental researchers across Canada. Priority research areas are cumulative effects, persistent organic pollutants, metals, endocrine-disrupting substances and air quality.

www.hc-sc.gc.ca/ehp/ehd/tsri/index.htm

Wildlife and Migratory Birds Research

Environment Canada conducts research on all aspects of wildlife health, from biochemical to population-level effects as well as impacts on loss of wildlife (e.g., sustainable harvest). The program is also investigating the use of selected wildlife as indicators of ecosystem health and as early warning signs of potential impacts of toxic substances on humans. The program focuses primarily on migratory birds and, to a lesser extent, on amphibians and reptiles, some mammals (e.g., polar bears) and plants. Migratory bird research provides the science base for the conservation of migratory birds, their habitat and ecosystems. Significant research is focused on coastal species (seabirds) and Arctic populations.

www.cws-scf.ec.gc.ca/nwrc

Regional Association for Research on the Gulf of Maine

The basic missions of the Association are to advocate and facilitate a coherent program of regional research; to promote scientific quality; and to provide a communication vehicle among scientists and the public. Members include educational institutions in Canada and the United States, and governments that have active research interests in the Gulf of Maine and its watershed.

www-nml.dartmouth.edu/rargom/

E OUTREACH AND EDUCATION

E.1 Raising Public Awareness

NPA Information Clearing-House

Launched in the spring of 2001, the NPA Information Clearing-House contains a wide range of on-line resources and expertise relevant to the NPA and links to community groups, scientists, and government. It also serves as a focal point for the NPA Secretariat, providing news and distributing documents to the public. For those new to the NPA, or to marine environmental issues in general, the Clearing-House allows people to explore issues through Frequently Asked Questions, an extensive glossary of scientific and technical terms and detailed references. The Clearing-House will continue to be updated to provide both more recent information and some exciting new features.

www.ec.gc.ca marine npa-pan htm

Oceans Program Activity Tracking System

A partnership between Fisheries and Oceans Canada and Natural Resources Canada, the Oceans Program Activity Tracking (OPAT) System is an interactive Internet tool that provides geographic information and facts on integrated management initiatives, marine protected areas, and marine environmental quality programs taking place across the country, and displays those initiatives in the context of ocean features and uses. The system is designed to increase national and international awareness of federal oceans program activities and to facilitate the involvement of coastal communities; social, cultural, environmental and economic organizations; Aboriginal groups; governments; and others in effective oceans management.

www.dfo-mpo.gc.ca canoceans

Canadian Biodiversity Information Network

The Canadian Biodiversity Information Network is the Canadian node of the international clearinghouse mechanism of the United Nations Convention on Biological Diversity. It was created by the Biodiversity Convention Office of Environment Canada, in co-operation with its partners. The network contains links to information, publications, policy, services, and many other biodiversity-related sites in a wide range of sectors, including forestry, agriculture, marine and coastal ecosystems, freshwater, indigenous knowledge, and more.

www.cbin.ec.gc.ca cbin html

Canadian Pollution Prevention Information Clearinghouse

The Canadian Pollution Prevention Information Clearinghouse is an Internet-based tool designed to link Canadians to pollution prevention information and to help them practise it and develop pollution prevention plans.

www.3.ec.gc.ca cppic

What You Can Do: Down to Earth Choices for Sustainable Living

The "What You Can Do" website is a place to find information, resources, tools and ideas to help Canadians take action for a healthier environment. It brings together resources from Environment Canada and across the country to encourage and support local environmental action, such as watershed restoration, sustainable economic development, sewage treatment and home septic systems, recycling, use of environmentally preferred products, and solid waste management.

www.ec.gc.ca/eco/

Government On-Line

Government On-Line is the plan to make the Government of Canada the most electronically connected government to its citizens in the world by 2004 and provide Canadians with electronic access to federal information and services. Government On-Line will make it easier for citizens and businesses to find what they need through one-stop access points with services and information organized by theme (such as the environment) or type of activity (such as services for seniors), rather than by government department. The past few years have seen great progress and many innovations in the on-line delivery of federal services and information. The Government On-Line initiative builds on what has already been accomplished to ensure that government works consistently and collaboratively, and with other partners, to create a world-renowned system of on-line service delivery. For example, Fisheries and Oceans Canada has a large section of its website dedicated to the various oceans management efforts.

www.gol-ged.gc.ca/index_e.asp

State of the Environment Reporting

The goal of State of the Environment Reporting is to report on environmental conditions and trends, their causes and consequences, their significance to the ecosystem, human health and the economy, and progress on resolving particular environmental issues. The focus of a State of the Environment report may be national and comprehensive in scope, specific to an environmental issue, or concentrated on a defined ecozone in Canada. Reports may be produced based on science assessments of critical and emerging environmental issues. While reports with a national scope have been published, State of the Environment Reports have also been prepared for provinces, territories, regions and ecozones. For example, British Columbia's State of Environment Reporting Office provides timely, accurate, and easily understood information on environmental conditions and trends that encourages better decision-making. The objectives are to provide a comprehensive analysis of environmental conditions and trends; to measure progress towards sustainability; to contribute to informed and open decision-making; to contribute to public awareness about environmental health; and to serve the public's right to know by providing access to scientific information about the environment in a concise and easily understandable fashion.

www.ec.gc.ca/soer-ree/
www.elp.gov.bc.ca/sppl/soerpt/index.html

Environmental Youth Programs

All levels of government develop and maintain various projects and courses for presentation to students at schools across Canada. Many of these programs are developed in partnership with educational

institutions, First Nations groups, and non-governmental organizations. They are aimed at enhancing awareness and understanding of ocean ecosystems, promoting stewardship, developing sound science backgrounds, and identifying career opportunities. Activities range from credit-based courses, to interactive workshops and websites, and school stewardship projects. Some of the key educational programs across the country include:

- *Oceans in the Classroom* – These Fisheries and Oceans Canada pilot projects include an Oceans Challenge program, a One Ocean presentation, a Beach in a Box kit, a Junior Shorekeepers program, and an Oceans Forum for Youth.

- *Eco Education British Columbia* – Offers fun and interactive workshops across British Columbia for students in grades 4-6, independent learning resources, and an educational website. (*www.bccf.com/ecoed*)

- *Arctic Marine Science Curriculum* – Currently being developed for Grade 10 students in Nunavut and the Northwest Territories, the course will meet pan-Canadian education curriculum standards and will be introduced as an academic science course.

- *Salmonids in the Classroom* – Throughout British Columbia and Yukon, provides teacher resources, an aquarium program where classes raise salmon, and education co-ordinators who support students and teachers. One of the learning resources was recently voted as number one of the top ten lesson aids in B.C. (*www-heb.pac.dfo-mpo.gc.ca/english/community/education/eduintro.htm*)

- *Oceans 11* – Provides Nova Scotia students with a grade 11 science credit and an appreciation of science, the important role that Canadians play in oceans management, and career opportunities.

- *Big Blue Bus* – Contains student and teacher reference materials, along with educational games for a varying range of age groups. Selected by Lightspan's Study Web® as one of the best educational resources on the World Wide Web, the Big Blue Bus helps Canadian children and children from around the world understand the importance of our ocean resources. (*www.dfo-mpo.gc.ca/oceanscanada*)

- *Jardin marin* – The Norjoli school, the Jardins de Métis and Fisheries and Oceans Canada have collaboratively developed a French-language toolbox on oceans for the use of children aged 5 to 12, teachers, and environmental educators. It includes teaching scenarios, pedagogical activities on the marine world, an ethical code for conserving the St. Lawrence, an annotated bibliography and numerous links to websites on the St. Lawrence and oceans. The objectives of the Jardin marin are to improve young people's understanding and knowledge of the different aspects of the St. Lawrence; to foster their awareness concerning the importance of protecting the marine environment, its living organisms and their habitats; to increase their interest in environmental sciences; and to develop a French educational product accessible by all primary schools via the Internet on the conservation of the St. Lawrence and of oceans in general. (*www.jardinmarin.qc.ca* – French only)

Oceans Day Activities

June 8 is World Oceans Day. All levels of government throughout Canada, as well as non-governmental organizations, community groups, and schools celebrate this special day through various displays and exhibits, interactive games, beach and park clean-up projects, and interpretive walks. Oceans Day Education Kits, developed in partnership with government and non-governmental organizations and led by the Canadian Wildlife Federation, are distributed to over 20 000 schools every year.

www.oceansconservation.com/newenglish/htmdocs/oday/oday.htm

WILD Education

The Canadian Wildlife Federation, in co-operation with educators, government, and other organizations, offers teachers, youth leaders, and youngsters more involvement in conservation education. Key programs include: an Ocean Education Kit which is distributed to 20 000 schools a year; Oceans Day Programs; a Blue Schools Program, which encourages action by schools and offers a commemorative plaque and medallions for completed projects; and a future Blue Communities program, similar to the Blue Schools program but tailored to community officials (e.g., mayors) and service clubs (e.g., Scouts Canada). Other WILD Education programs include Learning About Oceans, Project WILD, Fish Ways, and Habitat 2000. Together, these oceans education programs are used by more than 85 000 educators nationwide.

www.wildeducation.org/oceans/overview/index.htm

E.2 Mobilizing Communities

Sustainable Communities Initiatives

The goals of Sustainable Communities Initiatives are to co-ordinate and improve citizen-centred programs and service delivery across all governments, forge new partnerships, and collaborate with local citizens in their efforts to build strong, sustainable communities. Each community area identifies its own vision and priorities. Current programs include:

- **Sustainable Communities Initiative** – led by Natural Resources Canada, builds the capacity of Canada's Aboriginal, rural and northern communities who wish to use the Information Highway. (*www.sustainablecommunities.gc.ca*)

- **Canadian Rural Partnership** – led by Agriculture and Agri-Food Canada, serves as a rural advocate and co-ordinates rural activities. (*www.rural.gc.ca*)

- **Sustainable Communities Initiative in Nova Scotia** – identifies and addresses key issues affecting the long-term health and vitality of Bras d'Or Lakes and Annapolis/Fundy areas. (*www.nsaccess.ns.ca/sci*)

Shorekeepers' Guide

The Shorekeepers' Guide is a protocol for non-professionals to map and survey the intertidal zone, and to produce data for use by resource managers, environmental biologists, and marine researchers who are monitoring and assessing long-term changes in the marine environment. Three modules comprise the Shorekeepers' Guide and together demonstrate how to set up and conduct surveys, and how to organize and enter your data into the Shorekeepers' database. In particular, the third module contains a course curriculum intended for developing courses to train volunteers to conduct a survey and manage and report their data.

www.pac.dfo-mpo.gc.ca/sci/protocol/shorekeepers

Habitat Conservation and Stewardship Program in British Columbia

This program, led by Fisheries and Oceans Canada, is designed to foster partnerships and expand community capacity to steward fish habitat resources in British Columbia. Habitat stewards, co-ordinators and auxiliaries provide advice to people who may harmfully affect fish and fish habitat through their land and water use. The program maintains an extensive website that serves as a source of information on stewardship programs, education and training tools, and communications.

www.dfo-mpo.gc.ca/habitat/home_e.htm

St. Lawrence Observatory

Optimizing data exchange on the St. Lawrence ecosystem among specialists and transferring this knowledge to the public through the Internet are the main goals of the St. Lawrence Observatory. The Observatory also includes a directory of related Internet resources, on-line publications, a thematic bibliography, an illustrated bibliography, and value-added products such as satellite images, animations of water movements, and 3-D maps of the seabed.

www.osl.gc.ca

Global Programme of Action Coalition for the Gulf of Maine

Formed in 1997, this Coalition is comprised of representatives from environmental and community action groups, research and educational institutions, business, government, Aboriginal peoples and Native Americans. Its goals are to support the implementation of the GPA by identifying priorities for action on land-based activities that contribute to the deterioration of marine habitats in the Gulf of Maine ecosystem and to take action, or encourage others to take action, to reduce impacts on the ecosystem. Future efforts will focus on establishing management targets and objectives, implementing action, and identifying criteria for the evaluation of progress and effectiveness.

www.cec.org/statepage

Beach Sweeps

This project consists of a self-instruction kit developed as a tool for coastal communities to assist them in the organization and implementation of a clean-up in Atlantic Canada. Beach Sweeps has also been tailored for the Southern Quebec/St. Lawrence Region. The kit also contains promotional material to

assist volunteers in promoting the activity and provides guidance on how to attract media attention. Between September and November 2000, more than 1000 New Brunswickers collected 1300 bags of garbage (approximately 5 tonnes) from more than 100 km of New Brunswick coastline.

www.mar.dfo-mpo.gc.ca/science/OceansAct/beachsweeps/

Outreach and Partnering Program in New Brunswick

The New Brunswick Department of Environment and Local Government, through an Outreach and Partnering Program, provides resources and guidance to community-based watershed groups that are working on strategic planning and subsequent implementation initiatives throughout the province. This program is based on a watershed management approach with the primary component being the concept of watershed classification. Services to the community include the collection, analysis, and interpretation of water samples from fresh water, estuarine, and marine environments. Collected information is used to develop a watershed classification model that can be used as a water- and land-use planning tool. Community-based watershed groups are supported through the New Brunswick Environmental Trust Fund.

www.gnb.ca/elg-egl/

New Brunswick Environmental Trust Fund

The Province of New Brunswick manages an Environmental Trust Fund that is maintained through contributions from deposits on beverage container returns. This fund supports many community-based environmental management initiatives around the province. The Outreach and Partnering Program is an example of a community-based watershed management effort that is a major recipient of support from the fund. In 2000-2001 the Environmental Trust Fund directed approximately $2.4 million into environmental management initiatives, ranging from watershed-based strategic planning to specific actions.

www.gnb.ca/elg-egl/

Clean Nova Scotia

Clean Nova Scotia is a non-profit environmental education organization, working with Nova Scotians to help them understand the importance of environmental responsibility and to provide them with the means to make positive decisions about the environment. Clean Nova Scotia has an extensive website and delivers environmental programs province-wide. Their flagship programs include the Planet Action Club for Kids newsletter, the Great Nova Scotia Pick-Me-Up, and the Waste Reduction Centre.

www.cleanns.ca/home.html

Ocean Net

Ocean Net is a new action-oriented, grass-roots, non-profit organization founded in Newfoundland and Labrador. Its primary mandate is to help reverse the polluting of the world's oceans and the destruction of marine life by lost "ghost" fishing nets. Ocean Net is partnering with diving clubs, schools, fishers, community organizations, government agencies and environmental groups to implement a series of environmental initiatives which include: programs for the location and retrieval of lost fishing nets

(ghost nets), "Adopt A Beach" clean-up programs for schools and communities, and "Trash Ashore" programs for recreational boaters and fishers.

www.oceansact.com

F LEGISLATION, REGULATIONS, AND POLICIES

F.1 Federal Legislation

Within the federal government, Fisheries and Oceans Canada has the lead oceans role and is responsible for fisheries, fish habitat conservation, marine safety, oceans management, and aquaculture. Environment Canada is also a major player with its responsibility for environmental protection and conservation. At least two dozen other federal departments are involved in the management of Canada's marine environment and have their own policies and legislation. The following sections describe the key legislative and policy tools to manage the marine environment at the federal level. Federal legislation and regulations can be downloaded from the Internet at *laws.justice.gc.ca/en/index.html*.

Oceans Act

The *Oceans Act*, which came into force in 1997, outlines Canada's rights and responsibilities regarding its oceans and ocean resources. Canada was the first nation in the world to adopt comprehensive legislation that commits governments to work with stakeholders to conserve, protect and develop its ocean resources. The *Oceans Act* calls on the federal government to work with all coastal and marine interests to develop a comprehensive strategy for the management of Canada's oceans, based on the principles of sustainable development, integrated management, and the precautionary approach.

Canadian Environmental Protection Act, 1999

The renewed *Canadian Environmental Protection Act, 1999* (CEPA) is an act respecting pollution prevention and protection of the environment and human health in order to contribute to sustainable development. It contains new provisions respecting pollution prevention, investigation and assessment of substances, biotechnology, fuels, international air and water pollution, motor emissions, nutrients, environmental emergencies, government operations and federal and aboriginal lands, disposal of wastes and other matter at sea, and the export and import of wastes. Under a new section of CEPA, the Environment Minister may, after consultation with other affected Ministers, issue environmental objectives, and release guidelines and codes of practice to prevent and reduce marine pollution from land-based sources.

Canadian Environmental Assessment Act

The *Canadian Environmental Assessment Act* came into force in January 1995, and in 2000-2001 underwent a five-year review. The Act is a tool for federal decision-makers that establishes an open and balanced process to assess the environmental effects of projects requiring federal action or approvals. It ensures that the environmental effects of projects are considered as early as possible in planning processes.

Fisheries Act

The *Fisheries Act* contains habitat protection provisions, administered by Fisheries and Oceans Canada, that prohibit any project or activity that would cause harm to fish and fish habitat, unless authorized by the Minister. The pollution prevention provisions, administered by Environment Canada, prohibit the discharge of deleterious substances to waters unless authorized by a regulation under the *Fisheries Act* or other federal legislation. Regulations under the *Fisheries Act* address certain types of substances (e.g., pulp and paper effluents, metal mining effluents).

Policy for the Management of Fish Habitat

The Government of Canada's Policy for the Management of Fish Habitat provides direction on interpreting the broad powers for fish habitat protection in the *Fisheries Act*. The overall objective of the Policy is to achieve a "net gain in the natural productive capacity of habitats for the nation's fisheries resources to benefit present and future generations of Canadians" through three supporting goals: conservation of current productive capacity, restoration of damaged habitats, and development of fish habitat. The conservation goal is supported by the "no net loss" guiding principle, which balances unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to Canada's fisheries resources due to habitat loss or damage may be prevented. The policy emphasizes the importance of integrated planning to ensure that fish habitat plans are implemented with sufficient knowledge of current and future demands of other natural resource users. It recognizes that other sectors of the economy make legitimate demands on water resources, and promotes integrated planning as an approach to ensure the protection of fish habitat while providing for other uses.

www.dfo-mpo.gc.ca/habitat/Policy/english/index_e.htm

F.2 Pacific Region

Provincial ownership of the seabed of coastal inland waters is extensive. Within the Province of British Columbia, the Ministry of Water, Land and Air Protection is responsible for the management, protection, and enhancement of the environment, including the protection and conservation of provincial wildlife, water, land and air resources; and the management of ecological reserves. The Land-Use Coordination Office provides planning and advice on land-use initiatives, such as coastal zone land-use goals, the coastal inventory program, land and resource management planning, and marine protected areas. The Ministry of Agriculture, Food and Fisheries has some limited responsibility for oceans, fisheries, and aquaculture. Other ministries address Aboriginal affairs, industry, and natural resources. The following sections describe the key provincial legislative and policy tools used to manage the freshwater and marine environment in British Columbia.

British Columbia Legislation

British Columbia legislation and regulations can be downloaded from the Internet at *www.qp.gov.bc.ca/statreg/*.

Fish Protection Act

The *Fish Protection Act* focuses on four major objectives: ensuring sufficient water for fish; protecting and restoring fish habitat; improved streamside ecosystem protection and enhancement; and stronger local government powers in environmental planning.

Waste Management Act

The *Waste Management Act* includes a general prohibition against the discharge of all wastes in the province, including discharges to the marine environment, unless authorized. The Act also addresses pollution prevention and coastal resource management. There are over 30 regulations under the Act. Regulations that apply to operations that may discharge to the marine environment are: the Pulp Mill and Pulp and Paper Mill Liquid Effluent Control Regulation; the Waste Management Act Municipal Sewage Regulation, which regulates discharges to marine and freshwaters; the Antisapstain Chemical Waste Control Regulation, which deals with chemicals used to prevent staining of lumber; and the Aquaculture Waste Control Regulation, which outlines measures for carrying out this type of activity in tidal waters of British Columbia.

Wildlife Act

The *Wildlife Act* covers the conservation and management of recreational fish stocks, birds, and fish/marine mammal/bird habitat. This includes securing critical habitat that is located in intertidal areas and adjacent uplands.

Ecological Reserve Act

The purpose of this Act is to reserve Crown land for ecological purposes, including the following areas: areas suitable for scientific research and educational purposes associated with studies in productivity and other aspects of the natural environment; areas that are representative examples of natural ecosystems in British Columbia; areas that serve as examples of ecosystems that have been modified by human beings and offer an opportunity to study the recovery of the natural ecosystem from modification; areas where rare or endangered native plants and animals in their natural habitat may be preserved; areas that contain unique and rare examples of botanical, zoological or geological phenomena.

F.3 Arctic Region

The federal government administers most land in the Northwest Territories, Nunavut and Yukon, except for lands transferred to the governments of the Northwest Territories, Nunavut, and Yukon or to Aboriginal peoples under specific land claims agreements. Within the federal government, Indian and Northern Affairs Canada has jurisdiction over most matters, except where that matter is assigned by law to another federal department or agency. Some legislative authority is delegated to the territorial governments under various acts and administrative agreements. The land claims agreements in the North establish various classes of land ownership. Most importantly for the NPA, these agreements establish resource co-management boards with the rights to participate in land and water management. Legislation and regulations can be downloaded from the Internet at

- Government of Canada – *laws.justice.gc.ca/en/index.html*
- Northwest Territories – *www.assembly.gov.nt.ca/Legislation/index.html*
- Yukon – *www.lex-yk.ca/index.html*
- Nunavut – *www.assembly.nu.ca/*

Federal Legislation

Arctic Waters Pollution Prevention Act

This federal Act provides for the prevention of pollution of Arctic waters by regulating the deposit of waste from shipping and non-shipping activities, including coastal installations. Deposits of waste must be authorized by the Regulations, and a liability and compensation regime covers actual damages and clean-up costs for unauthorized deposits. The Act applies to a distance of 100 nautical miles for most activities but extends to the limit of Canada's jurisdiction for activities associated with the exploration, development or exploitation of seabed resources.

Canada Oil and Gas Operations Act

This Act regulates the exploration, development and production of oil and gas resources to promote safety, environmental protection and conservation of the resources. A liability and compensation regime for unauthorized spills covers damages, clean-up costs and loss of income. Various regulations under the Act regulate specific activities including pollution prevention, contingency planning and waste disposal.

Federal Real Property Act

This federal Act provides for the disposition of federal government lands that are not already under legislative control. In the Arctic, the Act is used to issue land rights for the seabed through such instruments as dredging licences and seabed leases for artificial islands. Appropriate environmental conditions may be attached to such instruments.

Mackenzie Valley Resource Management Act

This Act established a new co-ordinated system of resource management to regulate the use of land and water within the Mackenzie Valley. The Mackenzie Valley is defined as all of the Northwest Territories except the Inuvialuit Settlement Region. The Act ensures a greater role for Aboriginal people by providing guaranteed membership on institutions of public government for land use planning, environmental assessment and review, and the regulation of land and water use. The Act also provides for the monitoring of cumulative impacts on the environment and periodic independent environmental audits.

Nunavut Land Claims Agreement Act

This Act brings into force the comprehensive land claims agreement between the Government of Canada and the Inuit of the Eastern Arctic. The agreement provides ownership of certain lands to the Inuit and clearly defines Inuit rights to use other lands and resources, particularly wildlife harvesting. Joint decision-making bodies are established concerning the use, management and conservation of land, water and resources, including the offshore. A liability and compensation scheme provides compensation to the Inuit for wildlife harvesting losses resulting from development activities.

Western Arctic (Inuvialuit) Claims Settlement Act

This Act brought into force the land claims agreement between the Government of Canada and the Inuvialuit of the Western Arctic. Under the agreement, the Inuvialuit receive title to certain lands and specified rights on other lands throughout the settlement area. Exclusive wildlife harvesting rights are provided on certain lands and preferential rights are given for subsistence harvesting. A liability and compensation regime is established that provides for compensation to the Inuvialuit for harvesting losses and for the costs of habitat remedial and mitigative measures as a result of development activities. Joint government/Inuvialuit bodies are required by the agreement to provide for the protection and preservation of the Arctic wildlife, environment and biological productivity.

Northwest Territories Waters Act and Yukon Waters Act

These federal Acts regulate the use of inland waters and deposit of waste into such waters in the Northwest Territories and the Yukon, to provide for the conservation, development and utilization of waters in a manner that will provide the optimum benefit for all Canadians and for the residents of the territories in particular. The Acts establish Water Boards, set out their purpose and powers, and describe the process for issuing water licences, including the public hearing process.

Territorial Lands Act

This Act provides for the authorization and regulation of the sale, lease or any other disposition of federal lands under the control of Indian and Northern Affairs Canada in the north. Regulations relate to the control of land use activities in general and mining, quarrying, and dredging in particular. While the Act only applies onshore, it can be used to regulate coastal activities that could affect the marine environment.

Territorial Legislation

Environmental Protection Acts in the Northwest Territories and Nunavut

These Acts provide the governments of the Northwest Territories and Nunavut with authority to control the discharge of point and non-point source pollutants to the natural environment. They allow for the development of regulations, standards and guidelines relating to the preservation, protection and enhancement of the environment. Of direct relevance to the NPA in the Northwest Territories has been the adoption of regulations dealing with spill response and preparedness, as well as guidelines and standards dealing with industrial and hazardous wastes and the clean-up of contaminated sites.

Yukon Environment Act

This Act provides the Government of Yukon with a framework for environmental protection. It sets out the environmental rights of all citizens and the environmental responsibilities of the Government of Yukon. With respect to the NPA, the Act provides the authority to regulate development approvals, waste management, release of contaminants, hazardous substances and pesticides and spills. The Act applies throughout the Yukon except where it is in conflict with federal legislation, a land claim agreement or a self-government agreement.

F.4 Southern Quebec/St. Lawrence Region

Many laws, regulations, policies and programs are already in place, at both the provincial and federal levels, to meet the NPA goals and objectives of reducing or eliminating land-based sources of contamination. The Government of Quebec's measures deal primarily with municipal, industrial and agricultural sewage, atmospheric emissions, pesticide use and the disposal of solid waste, snow and hazardous waste. The Government of Quebec maintains an extensive website at *www.gouv.qc.ca*.

Quebec Legislation

Quebec legislation and regulations can be downloaded from the Internet at *publicationsduquebec.gouv.qc.ca/en/frame/index.html*.

F.5 Atlantic Region

New Brunswick Legislation

New Brunswick legislation and regulations can be downloaded from the Internet at *www.gnb.ca/justice/asrlste.htm*.

Clean Water Act

The purpose of the *Clean Water Act* is to protect ground and surface water from potential contamination by chemicals, fertilizers, construction activities and farm animals. The rules outlined within the Act allow the government to control the types of activity occurring on vital pieces of land and therefore the amount of waste produced. Included under the Act are several regulations, including: the Fees for Industrial Approvals Regulation, the Potable Water Regulation, the Water Well Regulation, the Protected Area Exemption Regulation, and an Appeal Regulation.

Clean Environment Act

The *Clean Environment Act* allows the Minister to control or reduce the amount of contaminant or waste incorporated into or upon the environment for any given period of time. This Act allows the government to eliminate the release of waste, alter the manner of its release or the practices involved in its release and to carry out appropriate clean-up procedures. The Act ensures that no person shall release a contaminant if that contaminant will affect the natural, physical, chemical or biological quality of the environment, or if the contaminant will endanger the health or safety of humans or animals or cause damage to property and plant life. Like the *Clean Water Act*, the *Clean Environment Act* includes several regulations: the Environmental Impact Assessment Regulation, the Water Quality Regulation, the Petroleum Product Storage and Handling Regulation, the New Brunswick Tire Stewardship Regulation, the Regional Solid Waste Commissions Regulation and an Appeal Regulation.

Community Planning Act

The *Community Planning Act* is administered by the Department of Environment and Local Government and provides a framework for the content, adoption, amendment, and repeal of community land-use plans and their associated implementation tools. The Act facilitates the environmental, economic, social and

physical development of communities, provides a framework for the delivery of land-use and community planning services, defines rules for administration of planning in the province, establishes a Provincial Planning Appeal Board, and provides guidance and standards for the orderly development, use, transfer, subdivision and management of land.

Newfoundland Legislation

Newfoundland and Labrador's *Environment Act* is the main provincial legislative instrument for protection of the environment, and includes regulations governing storage and handling of gasoline and associated products, air pollution and control of ozone-depleting substances. In addition, the water and sewage regulations require prior written approval for the construction of new sewage works, and stipulate the maximum concentration of some common pollutants.

Other important provincial environmental protection legislation includes the *Environmental Assessment Act*, which requires that any projects which may impact upon the environment must be registered with the department for examination, the *Pesticides Control Act*, the *Waste Management Act*, and the *Waste Material Disposal Act*, which controls storage of PCB waste, as well as waste material disposal areas.

Newfoundland legislation and regulations can be downloaded from the Internet at *www.gov.nf.ca/hoa/sr/*.

Prince Edward Island Legislation

Prince Edward Island legislation and regulations can be downloaded from the Internet at *www.gov.pe.ca/law/index.php3*.

Environmental Protection Act

Key components of Prince Edward Island's *Environmental Protection Act* include protection for watercourses, wetlands, sand dunes, and the requirement for Environmental Impact Reviews for developments considered to be undertakings. The newest provisions of the Act call for the inclusion of comprehensive buffer zones along wetlands and all watercourses. Current regulations under the Act include Sewage Disposal Regulations. In addition, there are guidelines for Soil Conservation for Potato Production and Agricultural Waste Management.

Planning Act

While the primary purpose of the *Planning Act* is for general planning across Prince Edward Island, it also has strong protection for watercourses and coastal areas. In recognition of natural erosion rates around Prince Edward Island, there are set-back requirements for properties and buildings from coastal and estuarine shores. The province expanded its provisions for set-back requirements from sensitive natural features such as watercourses, wetlands and sand dunes to apply to the entire province.

Nova Scotia Legislation

Nova Scotia legislation and regulations can be downloaded from the Internet at *www.gov.ns.ca/enla/pubs/legislat.htm*.

Environment Act

The *Environment Act* is a comprehensive Act that in 1995 consolidated 16 pieces of legislation covering most aspects of environmental protection under the jurisdiction of the Province of Nova Scotia. The principle of "pollution prevention", a mainstay of the NPA, is among the principles promoted in the Act.

Fisheries and Coastal Resources Act

The Nova Scotia *Fisheries and Coastal Resources Act* is a comprehensive Act passed in 1996 to consolidate a number of pieces of marine-related legislation under the jurisdiction of the Province of Nova Scotia. A principal concept of the NPA, "integrated coastal management", is promoted through the Act with the involvement of community in the management of coastal resources.

INDEX OF INITIATIVES

ACAP *See* Atlantic Coastal Action Program
Accelerated Reduction/Elimination of Toxics A-5
Agriculture and Environmental Resource Conservation Program in Prince Edward Island A-17
AMAP *See* Arctic Monitoring and Assessment Program
Arctic Council A-3
Arctic Marine Science Curriculum A-29
Arctic Monitoring and Assessment Program A-23
Arctic Waters Pollution Prevention Act A-36
ARET *See* Accelerated Reduction/Elimination of Toxics
Assessment of the St. Lawrence Marine Environment A-21
Atlantic Coastal Action Program A-11, A-12
Atlantic Coastal Zone Information Steering Committee A-15
Bay of Fundy Ecosystem Partnership A-15
Bay of Fundy Integrated Management Project A-9
Beach Sweeps A-31
Beaufort Sea Integrated Management Project A-9
Big Blue Bus A-29
Bras d'Or Lakes Estuary Integrated Management Project A-10
Britannia Mine Clean-up Agreement in British Columbia A-16
British Columbia Legislation A-34
Burrard Inlet Environmental Action Program A-13
CAFF *See* Conservation of Arctic Flora and Fauna
Canada Oil and Gas Operations Act A-36
Canada's Oceans Strategy A-8
Canadian Biodiversity Information Network A-27
Canadian Council of Fisheries and Aquaculture Ministers A-2
Canadian Council of Ministers of the Environment A-1
Canadian Environmental Assessment Act A-33
Canadian Environmental Protection Act, 1999 ..... A-33
Canadian Pollution Prevention Information Clearinghouse A-27
Canadian Rural Partnership A-30
Cascapedia Bay Integrated Management Project A-10
Central Coast of British Columbia Integrated Management Project A-9
Clayoquot Sound UNESCO Biosphere Reserve Integrated Management Project A-10
Clean Environment Act (NB) A-38
Clean Nova Scotia A-32
Clean Water Act (NB) A-38
Coastal Resource Inventories A-24
Coastal Resource Mapping Project A-24
Coastal Zone Canada Association A-14
Collaborative Approach to Sustainability in Nova Scotia A-4
Community Planning Act (NB) A-38
Conservation of Arctic Flora and Fauna A-17
Eastern Scotian Shelf Integrated Management Project A-9
Eco Education British Columbia A-29
Ecological Monitoring and Assessment Network A-22
Ecological Reserve Act (BC) A-35
Ecosystem Initiatives A-11
EMAN *See* Ecological Monitoring and Assessment Network
Environment Act (NS) A-40
Environmental Protection Act (PEI) A-39
Environmental Protection Acts in Northwest Territories and Nunavut A-37
Environmental Science Strategic Research Fund A-25
Environmental Youth Programs A-28
Federal Legislation A-33, A-36
Federal Real Property Act A-36
Federal Sustainable Development Strategies A-12
Fisheries Act A-34
Fisheries and Coastal Resources Act (NS) A-40
Fish Protection Act (BC) A-35
Fraser Basin Council A-13

Fraser River Action Plan A-14
Fraser River Estuary Management Plan A-13
Georgia Basin Ecosystem Initiative A-11
Georgia Basin–Puget Sound Task Force A-2
Global Programme of Action Coalition for the Gulf of Maine A-31
Government On-Line A-28
Great Lakes Basin 2020 Action Plan A-11
Green Municipal Funds A-5
Gulf of Maine Council on the Marine Environment A-4
Gulf of Maine Environmental Monitoring Plan A-24
Habitat and Contaminant Inventories in Newfoundland A-25
Habitat Conservation and Stewardship Program in British Columbia A-31
Habitat Restoration and Salmon Enhancement Program A-15
Hudson Bay Integrated Management Project A-9
Îles de la Madeleine Integrated Management Project A-10
Impacts of Sewage Discharge on the Marine Environment in Newfoundland A-22
Infrastructure Canada A-5
Integrated Management of Coastal and Marine Activities A-8
Jardin marin A-29
Legislation, Regulations, and Policies A-33
Mackenzie River Basin Board A-2
Mackenzie Valley Resource Management Act A-36
Man and the Biosphere Reserves A-20
Marine Conservation Areas A-18
Marine Debris Surveillance Program A-6
Marine Environmental Quality Program A-21
Marine Protected Areas A-18, A-19
Minister's Advisory Council on Oceans A-1
Model Forest Program A-7
Municipal Wastewater Effluent A-6
National Contaminants Information System A-24
National Fish Habitat Management Program A-15
National Pollutant Release Inventory A-22
New Brunswick Environmental Trust Fund A-32
New Brunswick Federation of Agriculture ... A-7
New Brunswick Legislation A-38
Newfoundland Legislation A-39
Northern Co-Management Boards A-3
Northern Contaminants Program A-23
Northern Contaminated Sites Management Program A-17
Northern Ecosystem Initiative A-11
Northern Rivers Ecosystem Initiative A-11
Northwest Territories Waters Act A-37
Nova Scotia Legislation A-39
NPA Advisory Committee A-1
NPA Information Clearing-House A-27
NPRI *See* National Pollutant Release Inventory
Nunavut Land Claims Agreement Act A-36
Oceans Act A-33
Ocean Net A-32
Oceans 11 ..... A-29
Oceans Day Activities A-30
Oceans in the Classroom A-29
Oceans Program Activity Tracking System A-27
Oil Spill Response Tools A-6
OPAT *See* Oceans Program Activity Tracking System
Outreach and Partnering Program in New Brunswick A-32
PAME *See* Working Group on the Protection of the Arctic Marine Environment
Planning Act (PEI) A-39
Policy for the Management of Fish Habitat A-16, A-34
Prince Edward Island Legislation A-39
Priority Intervention Zones A-14
Protected Areas Strategy in New Brunswick A-20
Protected Areas Strategy in the Northwest Territories A-20
Protection of Sensitive Streams in British Columbia A-16
Protocols on Persistent Organic Pollutants and Heavy Metals A-4
Quebec Legislation A-38
Regional Association for Research on the Gulf of Maine A-26
Regional Growth Strategy in British Columbia A-13
Regional Mercury Action Plan A-4

Regional Programme of Action for the Arctic A-3
Salmonids in the Classroom A-29
Shellfish Sanitation Program A-23
Shorekeepers' Guide A-31
SLV 2000 *See* St. Lawrence Vision 2000
Small Craft Harbours Program A-13
Southern Gulf of St. Lawrence Coalition on Sustainability A-10, A-14
Southern Gulf of St. Lawrence Integrated Management Project A-10
St. Lawrence Observatory A-31
St. Lawrence Upper North Shore Integrated Management Project A-10
St. Lawrence Vision 2000 ..... A-12
St. Lawrence Vision 2000 Action Plan A-11
State of the Environment Reporting A-28
Sustainable Communities Initiative in Nova Scotia A-30
Sustainable Communities Initiatives A-30
Tariuq Monitoring Program A-21
Territorial Lands Act A-37
Territorial Legislation A-37
Toxic Substances Research Initiative A-26
Waste Management Act (BC) A-35
Waste Management Plans in Atlantic Canada A-6
Water Quality Monitoring A-22
Watershed Restoration Program in British Columbia A-16
West Coast Vancouver Island Integrated Management Project A-9
Western Arctic (Inuvialuit) Claims Settlement Act A-37
What You Can Do: Down to Earth Choices for Sustainable Living A-28
WILD Education A-30
Wildlife Act (BC) A-35
Wildlife and Migratory Birds Research A-26
Wildlife Areas and Migratory Bird Sanctuaries A-20
Wildlife Habitat Improvement Program in Prince Edward Island A-18
Working Group on the Protection of the Arctic Marine Environment A-5
Yukon Environment Act A-37
Yukon Waters Act A-37
ZIP committees *See* Priority Intervention Zones